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What is wrong with grammar?

Danish university students' difficulties with the acquisition of written English and theoretical grammar

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WHAT IS WRONG WITH GRAMMAR?

DANISH UNIVERSITY STUDENTS' DIFFICULTIES WITH
THE ACQUISITION OF WRITTEN ENGLISH
AND THEORETICAL GRAMMAR

BY
RICHARD SKULTÉTY MADSEN

DISSERTATION SUBMITTED 2017



AALBORG UNIVERSITY
DENMARK

What is wrong with Grammar?

*Danish university students' difficulties with the acquisition
of written English and theoretical grammar*

By

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CV

Having first studied high-current automation in electrical engineering, I earned an M.A. in General and Applied Linguistics and Russian Language from Aarhus University. My main study interests were language typology, contrastive analysis and computational linguistics. Just before the completion of my studies, I was hired to develop the Danish grammar checker for Microsoft Office at Lingsoft Inc. in Helsinki in 2000. Thereafter, I have taught countless courses in Danish (both as first and second language), English grammar, phonetics, semantics as well as second language acquisition and pedagogy among other things at various universities in Denmark. I am also a free-lance lecturer in Danish grammar and orthography for Folkeuniversitetet (People's University in Denmark) and in contrastive analysis for schools of Danish as a second language.

English summary

The purpose of this PhD project was to uncover, describe and explain the difficulties that Danish university students would encounter in the acquisition of written English and in the learning of theoretical grammar. As an extension to the mapping of said difficulties, the project also aimed at providing informed recommendations as to how the teaching of English and grammar, and the evaluation of the students' performance might be improved.

The object of study in the project was freshmen of English Business Communication at Aalborg University, that is, language learners whose command of English was already fairly strong – at least in speech – when they entered the field of vision of this study. The project focused exclusively on the students' written language, because that was the focus of the study program itself.

Apart from attempting to uncover the students' difficulties, the project tested three theories. Two of them are well known within the research field of second language acquisition. These were Krashen's monitor theory, and the theory of cross-linguistic influence. The former concerns the relationship between explicit knowledge of grammar and the implicit mastery of a language. The latter is about the influence that one language might exert on another during language acquisition and production. The third theory, Keenan and Comrie's accessibility hierarchy of relativization, was brought in from the field of linguistic typology and linguistic universals.

The monitor theory was tested because it claims that learning grammar explicitly is unnecessary and futile for developing a practical mastery of a language. This claim contradicts the very basis of one of the courses taught in English Business Communication, namely English Grammar, in which the students were taught theoretical grammar with the expressed expectation that they would be able to convert the theoretical knowledge into improved writing skills.

The theory of cross-linguistic influence was tested to determine how large a proportion of the students' deviation from standard English could be attributed to their Danish background. Similarly, but to a lesser extent, the theory was tested to see whether English could influence the students' use of Danish. The theory was tested with respect to the use of relative clauses and the order of clause constituents.

The project was article based. Five articles had already been published prior to the writing of this thesis, and one has been accepted for publishing. In addition to the articles, four papers were presented at one department-internal, two national and one international conferences, respectively.

English summary

The students' use of practical language skills was considered within the genres free composition in English, summarising of English texts in English and translation from Danish into English. To a limited extent, the students' ability to translate from English into Danish was also investigated. The students' works were evaluated with respect to orthographical, grammatical and semantic precision. The students' knowledge of theoretical grammar, i.e. their ability to analyse the structure of English expressions morphologically and syntactically in terms of a theoretical linguistic framework, was evaluated on the basis of grammar home assignments and grammar exams.

The study of the students' mastery of English and theoretical grammar was primarily based on the analysis of the regular curricular work of students from 2009 to 2016 in the courses English Grammar and Production of Written Texts. The students' texts were analysed in the same framework of error analysis which had been developed for providing feedback to the students during the courses, and which also served as the basis for grading the students' exams.

Besides the corpus of the students' course work, questionnaire surveys were also used to gather additional data. The surveys provided linguistic data to augment the corpus with items that were underrepresented in it, and data on the students' educational background as well as study motivation and attitudes. The latter were used to seek alternative explanations of the linguistic difficulties that were detected.

One published article and one paper presented at an international conference were devoted to the testing of the monitor theory. The same article and another conference presentation were also used to disseminate preliminary findings on the students' linguistic difficulties. One published article, the article forthcoming and two conference presentations were dedicated to the testing of cross-linguistic influence. The applicability of the accessibility hierarchy of relativization was the theme of one article. One article dealt with issues concerning the learning of theoretical grammar. One article was allocated to a study of the students' pre-university knowledge of grammar, motivation and attitudes to studying.

It was found that the students were motivated to study, but were rather unprepared for studying at a university and did not have a clear awareness of their own knowledge. With respect to precision in writing, it was determined contrary to expectations that grammar did not pose the greatest challenge, but vocabulary and especially orthography did. Nevertheless, mistakes with seemingly elementary grammatical phenomena, for instance subject-verb agreement, did have an alarmingly high rate of occurrence. As for theoretical grammar, clause constituents and subordinate clauses proved to be the most challenging topics closely followed by morphological analysis.

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The testing of the theory of cross-linguistic influence showed that negative transfer from Danish might explain up to three quarters of the students' mistakes, and influence from English could also be identified in the students' Danish. Some interference from Google Translate could be detected as well. The testing of the monitor theory remained inconclusive. A weak to medium strength correlation could be demonstrated to exist between knowing theoretical grammar better and writing English more precisely. However, a causal relationship could not be established in either direction because of insufficient data.

Based on the project's results, it is recommendable that more effort be exerted especially on practising vocabulary, morphology and some important – even if seemingly elementary – parts of both theoretical grammar and practical grammar.

Dansk resume

Formålet med nærværende ph.d.-projekt var at afdække, beskrive og forklare hvilke vanskeligheder danske universitetsstuderende havde med tilegnelsen af skriftligt engelsk og teoretisk grammatik. I forlængelse heraf sigtede projektet også mod at komme med begrundede forslag til hvordan undervisningen i engelsk og grammatik samt evalueringen af de studerendes arbejde kunne forbedres.

Undersøgelsesobjektet i projektet var førsteårsstuderende af Engelsk Virksomhedskommunikation ved Aalborg Universitet. Det var således informanter der allerede beherskede engelsk på et rimelig højt niveau – i hvert fald mundtligt – da de begyndte at medvirke i projektet. Projektet fokuserede udelukkende på de studerendes skriftsprog fordi det også var selve studiets fokus.

Udover at forsøge at afdække de studerendes vanskeligheder testede projektet tre teorier. To af dem er velkendte indenfor forskningsfeltet andetsprogstilegnelse. Det var Krashens monitorteori og teorien om tværspørgelig påvirkning. Førstnævnte beskæftiger sig med forholdet mellem eksplicit viden om grammatik og den implisitte beherskelse af et sprog. Sidstnævnte handler om den indflydelse som et sprog kan udøve på et andet under tilegnelsen og produktionen af dette. Den tredje teori, Keenan og Comries tilgængelighedshierarki i relativsætninger, blev hentet fra studiet af sprogtypologi og sproglige universalier.

Monitorteorien blev testet fordi den postulerer at grammatikindlæring er unødvendig og nyttesløs mhp. at opnå en praktisk beherskelse af et sprog. Dette modsiger selveste udgangspunktet for et af kurserne ved Engelsk Virksomhedskommunikation, nemlig Engelsk grammatik, hvori de studerende skulle lære teoretisk grammatik med forventning om at de ville være i stand til at omdanne den teoretiske viden til forbedrede skriftsproglige færdigheder.

Teorien tværspørgelig påvirkning blev testet for at finde ud af hvor stor en del af de studerendes afvigelser fra standardengelsk skyldtes deres dansksproglige baggrund. På lignende vis, men i mindre omfang blev teorien testet for at undersøge om engelsk også kunne påvirke de studerendes brug af dansk. Teorien blev testet med fokus på de studerendes beherskelse af relativsætninger og ledstilling.

Projektet var artikelbaseret. Fem artikler var allerede blevet publiceret inden denne afhandling blev skrevet, og en mere er blevet antaget til publicering. I tillæg til artiklerne blev der afholdt fire præsentationer ved hhv. en intern, to nationale og en international conference.

De studerendes færdigheder blev undersøgt indenfor genrerne fri komposition, resume af engelske tekster på engelsk og oversættelse fra dansk til engelsk. I et begrænset omfang blev også de studerendes evner til at oversætte fra engelsk til dansk undersøgt. De studerendes tekster blev evalueret mht. ortografisk, semantisk og grammatisk præcision. De studerendes viden om teoretisk grammatik, dvs. deres evner til at analysere engelske udtryks struktur morfologisk og syntaktisk i forhold til en grammatikteori, blev undersøgt på basis af deres grammatikhjemmeopgaver og -eksaminer.

De studerendes kundskaber og færdigheder blev primært undersøgt ved at analysere deres regulære studiearbejde i fagene Engelsk grammatik og Skriftlig sprogproduktion fra 2009 til 2016. De studerendes tekster blev analyseret vha. den samme fejlanalysemetode som var blevet udviklet til at give de studerende feedback med, og som også tjente som basis til karaktergivningen.

Udover korpuset, bestående af de studerendes tekster, blev der også anvendt spørgeskemaer for at indsamle yderligere data. Spørgeskemaerne supplerede korpuset med sproglige data som var underrepræsenterede i det, og med data om de studerendes uddannelsesmæssige baggrund samt motivation og holdninger til at studere. Sidstnævnte blev anvendt til at søge alternative forklaringer på de lingvistiske vanskeligheder der var fundet.

Testningen af monitorteorien blev behandlet i en publiceret artikel og en præsentation ved en international conference. Selvsamme artikel og en anden konferencepræsentation blev også brugt til at offentliggøre foreløbige resultater om de studerendes sproglige vanskeligheder. Teorien om tværsproglig påvirkning blev behandlet i en publiceret artikel, artiklen under publikation og to konferencepræsentationer. Tilgængelighedshierarkiets relevans for sprogtilegnelse var temaet i en udgivet artikel. En artikel handlede om læringen af teoretisk grammatik. Den sidste artikel var forbeholdt undersøgelsen af de studerendes forkundskaber samt motivation og holdninger til at studere.

Resultatet blev at de studerende besad mangelfulde forkundskaber og var ikke rigtigt bevidste om deres egne evner, men var højt motiverede til at studere. Angående de skriftsproglige færdigheder blev resultaterne noget overraskende at grammatik ikke udgjorde den største kilde til vanskeligheder, men det gjorde ordforrådet og især ortografi. Ikke desto mindre blev der fundet alarmerende mange fejl ved anvendelsen af basale grammatiske regler, fx kongruens mellem subjekt og verballed. Indenfor teoretisk grammatik viste sætningsled og ledsætninger sig som de største udfordringer, tæt fulgt af morfologisk analyse.

Undersøgelsen af tværsproglig påvirkning har vist at op til tre fjerdedele af de studerendes fejl kan skyldes negativ transfer fra dansk, og der kunne også påvises negativ transfer fra engelsk i de studerendes tekster på dansk. Der kunne også identi-

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ficeres nogen negativ indflydelse fra Google Translate i de studerendes grammatik. Resultatet af undersøgelsen af monitorteorien blev ikke entydigt. Der kunne påvises svag til medium korrelation mellem viden om teoretisk grammatik og præcision i skrift, men en kausal forbindelse derimellem kunne ikke bevises pga. utilstrækkelige data.

På basis af projektets resultater kan det anbefales at der rettes skærpet opmærksomhed mod indlæringen af ordforråd, øvelsen af morfologisk analyse og af elementære grammatiske regler.

Acknowledgements

Even though only my name figures on the front page of this thesis, it could not have been realised without the contribution of a great many people. It would probably fill a whole volume if I were to list all these people; therefore, I shall restrict myself to name only those who have been involved in the project most directly.

First and foremost, I extend my gratitude to my students of English Business Communication at Aalborg University, who functioned as my “guinea pigs” during this project. I wish you could have benefitted from the insights that I have gained with your assistance.

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Last but by no means least, my admiration goes to my wife, Panni. Not only did you never complain about my spending hours and hours with my computers, but you always knew when I needed a kick in my butt to stop procrastinating and get some work done, and when I genuinely needed a break, and you acted accordingly.

This project is dedicated to language learners and language teachers. May you succeed in your endeavour.

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1 Introduction

The primary aim of this PhD project (01.02.2012-31.01.2017) was to describe and explain the difficulties that Danish university students encountered in the acquisition and the use of written English and the learning of theoretical grammar. Another incentive of this study was a pedagogical one. Even though Danes are often praised for their good command of English (Education First 2016), there seems to be room for improvement. Therefore, it was also the project's goal to provide some informed recommendation as to how the teaching of English and of grammar might be improved. Additionally, the project sought to test three theories concerning language acquisition.

Much of this project has been published in peer-reviewed articles, which can be found in Appendices A through F. The purpose of this thesis is to provide background information on the theory that informed the project, the methodology that was used in it, the data that were collected for it, the informants who provided the data and the motivation for the individual articles. The motivation for the project as a whole is explicated in the paragraphs below. The project features several aspects which appear seldom in the literature as topics of scrutiny.

Firstly, I investigated the language acquisition of so-to-speak professional learners, namely university students whose chosen line of study was English, and whose command of English was already fairly strong when they entered the field of vision of this study. Most studies within the field of second language acquisition deal with the acquisitional process of so-to-speak amateur learners (Rankin 2015, Krashen 2015). These people's professional objective is not to learn a new language, but they need to learn a second language for other reasons, for instance repatriation (Clahsen et al. 1983, Norton Peirce 1995) or language immersion in the case of school pupils (R. Ellis 2012). They also tend to be beginners in the language the acquisition of which is studied.

Secondly, this project focused exclusively on the written language, whereas most studies explore the acquisition of the oral language. The focus on the written language was partly a consequence of the fact that the language learners studied were university students who had to master the written language for their future profession. It was also a consequence of the fact that the specific students whose acquisition of English was studied here were not taught the spoken language explicitly, meaning that their line of study did not include courses on oral proficiency.

Thirdly, I considered not only the acquisition of practical language skills, that is, the ability to write English correctly, but also the learning of theoretical linguistic

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knowledge of the English language, i.e. the knowledge to analyse the structure of English expressions morphologically and syntactically in terms of a theoretical descriptive linguistic framework. Most studies focus exclusively on the acquisition of practical language skills.

I included study of the learning of theoretical grammar because the informants were university students whose curriculum contained obligatory courses in the theory of grammar. I also included it in order to be able to test the validity of the monitor theory about how necessary or useful the explicit knowledge of grammar is for language acquisition (Krashen 1978, 1979, 1981, 1982).

Furthermore, I also paid some attention to the challenges that the students might have with writing their first language. Since the project was to be conducted with the participation of students who studied English, it was only natural to focus – as the subtitle suggests – on the difficulties that the informants might have with the acquisition of English. It is also a common approach within the framework of the theory of cross-linguistic influence to focus on the influence that the informants' first language (here Danish) might exert on the language that the informants are acquiring (here English). However, I realised during the project that the students being studied might also have some weaknesses in writing Danish. Therefore, some room was allotted in the study to investigate these apparent challenges as well.

Not least because of the pedagogical perspective mentioned at the beginning, I did this project as a reflective practitioner (Jacobsen 1999). Most of the informants were my own students in the Section of English Business Communication in the Department of Culture and Global Studies, Aalborg University. Some of the preliminary results were incorporated into the curriculum and the way of examining the students already during the project.

In order to gain a wider outlook, I observed the academic and pedagogical practises in comparable English departments at the University of Belgrade, Serbia, and the University of Maribor, Slovenia. Data were also collected from the students in these departments. Slovene students of English were especially chosen as object of comparison to the Danish students because Slovenia boasts with a similarly high level of English proficiency as Denmark (Education First 2015, Eurostat 2016). Furthermore, the Slovene language shares certain properties with Danish within the realm of relative clauses, which makes it a suitable candidate for the testing of the theory of cross-linguistic influence. Section 6.9 explains why Slovene is a good object of comparison linguistically.

The Serbian informants were included mainly out of convenience as I had access to them due to acquaintance with a faculty member at the University of Belgrade. They were employed in order to have a wider base for the testing of possible cross-linguistic influence with respect to relative clauses.

1.1 Research questions

To ease the execution and assessment of the project, the following explicit research questions were formulated.

1. What are the major difficulties of Danish students in writing English?
2. What are the major difficulties of Danish students in learning theoretical grammar?
3. How can the difficulties in writing English be explained?
4. How can the difficulties with theoretical grammar be explained?
5. What is the relation between knowing theoretical grammar and practical writing skills?

The answers to the first two questions were sought via the analysis of an extensive data set in an as inductive fashion as possible. The answers to the other three questions were sought by first positing hypotheses based on the monitor theory and the theory of cross-linguistic influence, and then by testing these against the same data set that was used for addressing the first two questions.

This thesis was written some time after the articles that form part of the project. The thesis represents my current thinking on the issues touched upon, and there may therefore be some minor discrepancies between the content of the thesis and the content of the articles. In such cases, the content of the thesis should take precedence.

1.2 Structure of the thesis

Below is an overview of the structure of the thesis.

Chapter 2 describes the methodological considerations taken in the project, including the types of data used and the groups of informants employed.

Chapter 3 explains the data used in the project in detail. Having a grasp of the data and their sources is a prerequisite for understanding the project. The articles pub-

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lished thus far did not always provide enough space for publishing all details about how the results were reached.

Because the project was mainly data driven, the description of the methods and the data used in it has been given prominence by placing the relevant sections at the beginning of the thesis. Nevertheless, several theories did play a role in the formation of the project.

Chapter 4 is dedicated to the theories that were actually tested in the project. Chapter 5 contains the theories that provide the conceptual framework of the project, and thereby gives a flavour of key notions in the field of the study of second language acquisition and second language pedagogy.

Chapter 6 enumerates the papers that have been presented publicly, and which represent the major phases in the development of the project.

Chapter 7 provides the conclusion which could be reached based on the work completed thus far.

Chapter 8 lists ideas that are planned as follow-ups to this project.

Appendices A through E list the articles that have been published as part of this project. For reasons of copyright, only links are provided to the webpages from which the articles can be downloaded freely (B, D, E) or purchased (A, C). Appendix F contains the article that has been accepted for publishing. It is included here in its latest edition. Appendices G and H enclose the questionnaires that, due to space constraints, were not published in the articles for which they had been made.

2 Method

I was a teacher of the two courses English Grammar and Production of Written Texts already prior to the start of the project and simultaneously with writing it. In these courses, the participants had to hand in numerous assignments and do written exams. Hence, it was clear from the beginning that a massive number of texts would be available from informants¹ to the project. In fact, hundreds of texts had already been archived before the commencement of the project in February 2012, as part of the customary bookkeeping process in connection with evaluating and examining.

Due to the abovementioned availability of a huge amount of data, a largely *corpus-based approach* was adopted for the project (Gilquin and Gries 2012, Creswell 2014). The corpus of texts was supplemented by various questionnaire surveys (Oppenheim 1992). The primary method of analysis was *error analysis* (Corder 1967).

In the first two sections, an outline is given of the content of the database of the project. It is necessary in order for the reader to understand why the chosen method was selected. Then follows a description of the main analytical method used in the project, namely error analysis. It is succeeded by a discussion of the nature of the analysis and the data from the point of view of the philosophy of science.

Hereafter, the typical workflow adopted in the project is described briefly, and a sketch of two secondary methods of analysis that were planned is given. The chapter concludes with a discussion of the contemplations concerning the choice of informants, and with a note on what may have seemed to be an obvious choice of methodology but was abandoned for ethical considerations.

Although some reference is necessarily made in this chapter to the data used in the project, Chapter 3 is dedicated to an in-depth description of the corpus as well as all the data types and data items, augmented with the *practical* methodological considerations that had to be exercised in connection with the accumulation of the data.

2.1 The corpus of naturally occurring data

¹ Because the informants of this project were all university students, the terms informant and students are used interchangeably in this thesis.

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As the main collection of raw data, an electronic corpus of naturally occurring data consisting of the texts that the students wrote as home assignments and exams was compiled. It may be surprising to call such data naturally occurring since naturally occurring data in the field of studying second language acquisition usually connotes to learners engaging in personal dialogs in everyday settings or learners' texts written in everyday situations, for example mails to friends, authorities and suchlike (Derewienka 2001: 262, R. Ellis and Barkhuizen 2005: 23ff). No part of the data set used in this project is such.

However, it is arguably natural for university students, whose mastery of English at the *university* is the very topic of this project, to write texts as academic exercises as part of their university life. Data falling into these categories were not produced specifically for this project, but would have been produced by the students in the same way even if this project had never existed. Also the error analysis of the texts – elaborated in Sections 2.3 below – was done independently from the project since the error analysis was a part of the feedback which was given to the students as prescribed by the study regulation (see also Sections 3.1.1 and 3.1.3).

Luckily, by the commencement of the project, it had been decided in my department that students' home assignments were to be submitted obligatorily electronically, which eased data collection considerably. Unlike the home assignments, written exams had to be done on paper up until 2016, thus exam texts which were to be included in the corpus had to be typed in manually.

The informants were of course apprised that their texts would be subjected to a scientific analysis, and preliminary results of the project were continuously shared with them. They were even invited to comment on the articles that I would submit for publication. Unfortunately, only one of the students ever seized this opportunity. Nevertheless, the informants' texts were commented on and evaluated in the same way as it would have been done without the project going on simultaneously.

2.2 Survey data

Several questionnaire surveys were conducted in order to supplement the corpus with linguistic data and in order to collect non-linguistic data such as the educational background as well as the motivation and the attitude of the informants (Dörnyei 2010, 2014, Hadfield and Dörnyei 2013). Despite its extensiveness, it was necessary to augment the corpus with data from questionnaires which probed specific linguistic phenomena on which the corpus did not and could not provide sufficient information (R. Ellis and Barkhuizen 2005: 23ff, Gilquin and Gries 2012: 9). Such a

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linguistic phenomenon was, for instance, the use of relative pronouns under specific conditions (see Sections 6.6 and 6.9 for details).

Gathering data on the informants' attitude and educational background was not necessary from a purely linguistic point of view, which the project might seem to have. However, it soon became apparent that several interesting questions, for instance why so many students seemed to be challenged by theoretical grammar, could not be answered on purely linguistic grounds, but called for a broader perspective on the matter.

2.3 Error analysis

As mentioned above, error analysis (Corder 1981) was chosen as the primary method of data analysis. It was selected for two reasons. First, it was considered of paramount importance that the informants' acquisition of English and their possible difficulties therewith be examined as close to their reality at the university as possible. It meant, among other things, that the feedback which the informants received as part of the routine evaluation of their work was to be included in the project as data, and this feedback was essentially an error analysis of their texts.

Second, the method of error analysis suited the purpose of the project very well. Generally, one is more prone to making mistakes in an activity that one is not so familiar with or not so trained in than in an activity in which one is well versed. Therefore, it was assumed that the difficulties which the informants might have with English, which the project set out to uncover, would be reflected in the quality of the informants' writings, or conversely, in the nature and the number of mistakes committed by them in their texts and survey responses.

In practical terms, the informants' texts were tagged with metadata that reflected the error analysis of the texts. These same metadata were used for three different, though related purposes, in line with Corder's ideas (1967) and as alluded to above.

- 1) They were used by the students to make inferences as to how they can further their academic development.
- 2) They formed the basis for the grading of the students' work upon the conclusion of the respective course.
- 3) They provided an invaluable resource for the project to make inferences about the students' academic standing, direction of development, and likely difficulties with English.

The error analysis was done differently in the two courses Production of Written Texts and English Grammar because the texts to be analysed were of different

nature. Therefore, the description of the error analysis is described in separate subsections below.

It should be noted that however useful and revealing it might be, error analysis has been criticized for focusing on negative aspects of a language learner's developmental process (Ringbom 2007: 32). Critics suggested that this might be demotivating for the learner (Dörnyei 2010, R. Ellis 2012) and therefore disadvantageous for the acquisition process. Though, this psychological aspect was not considered detrimental when error analysis was institutionalised in my department, and for this reason, error analysis was used extensively in this project. As explained below in detail, the system of error analysis adopted in my department is not form-focused, but contains provision for noting semantic and pragmatic mistakes too. Thus, the pedagogical pitfall of a form-focused feedback system is avoided (Frederiksen and Knudsen 1999).

Nevertheless, it is true that error analysis cannot reveal every aspect of language use and language acquisition. It reveals only what is considered unacceptable in a language; it does not reveal qualitative differences between various acceptable uses of language. It measures precision in the production of texts only quantitatively. It may even happen that a text which contains a higher number of mistakes than another one somehow comes across as better or as more appealing to language users than the other one, judged on some other grounds, for instance on the basis of its vocabulary.

Some of the shortcomings of error analysis were alleviated by the use of questionnaire surveys. The corpus too shall be analysed with the help of further methods, such as the above-mentioned lexical and morpho-syntactic analyses, in the future.

2.3.1 Mistakes vs errors

It is customary to distinguish between mistakes and errors (Corder 1981). The former are treated as signs of momentary lapses in the language user's attention caused by noise, fatigue and suchlike, and the latter are considered as indicators of systemic deficiencies in the language user's language system, i.e. insufficient knowledge of the language used.²

² In principle, errors could be subdivided according to the cause of insufficient knowledge. It may be that a learner does not know something because they have not acquired it despite having been taught or otherwise exposed to the given phenomenon. Such errors could then even be subdivided according to the cause of why the learner has not acquired the phenomenon in question yet. However, it may also be that a learner does not know something simply because they have never heard (of) or seen that phenomenon yet. This distinction was drawn

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While the distinction is straightforward to make in theory, it is close to impossible to decide in practice whether a given deviation of an informant from standard usage is a mistake or an error. It is impossible to look inside one's head and map out one's linguistic system or follow closely enough the psycho-physiological processes in the brain which may crosstalk with each other, causing mistakes.

For this reason, little effort was exerted on making a categorical decision as to whether a linguistic deviation detected was a mistake or an error. Hence, the terms mistake and error have been used interchangeably throughout the project and in this thesis. However, this indifference pertains only to individual deviations.

When considering deviations statistically, i.e. as properties not of an individual informant, but of a population or sample of informants, an attempt was made to discern what is a systemic deviation (an error) and what is an accidental occurrence (a mistake). This was indeed the very basis of determining what could be considered as the difficulties that the students faced in their acquisition of English. What could be considered an error indicated difficulty; what appeared a mistake did not indicate difficulty.

2.3.2 Error analysis in the course Production of Written Texts

In this course, the students had to produce texts in English, such as free compositions, summaries and translations. Hence, the error analysis was done on running texts. The mistakes which were detected in the informants' texts were marked in comments in the submitted texts as belonging to one of several error types predefined in the study regulation, and this information constituted the regular feedback as prescribed to the informants by the study regulation (see Section 2.3.3 for details on the error categories).

Only deviations judged unacceptable in standard English were marked as mistakes. Such deviations were marked even though they did not hinder the comprehension of the text. Expressions that might have "sounded" better in another form were ignored unless they clearly violated stylistic requirements of the given text type or seemed to be attempts of using fixed expressions, which went awry (for instance *on the other side* instead of *on the other hand*).

The error analysis was largely manual labour performed by me. In certain cases, typically in translations which evoked the same mistakes from many students, and which could be easily identified, it was partially automated with the help of purpose-made VBA scripts (Visual Basic for Applications, the programming lan-

in the project, because it was assumed that the students had already been exposed to all the linguistic phenomena that featured in the error analysis.

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guage of the Microsoft Office package, Roman 1999, Bovey et al. 2009, Jelen and Syrstad 2010, Mansfield 2010, Lim 2011, 2012, Keys 2013). VBA scripts were in fact used extensively during and in the project, and all of them were written by me.

Since some parts of the corpus had already been compiled and annotated with error-analysis metadata before the project started in February 2012, some inconsistencies in the annotation were observed when the project set sail. Before the beginning of the project, the only requirement of the error analysis had been that it be explanatorily adequate, i.e. it give the students useful enough information as to the nature of their mistake. It had not been expected that the error analysis be scientifically consistent. Therefore, a consistent way of annotating had to be developed at the beginning of the project, and texts annotated earlier had to be brought up to date (see Section 2.3.4 for a detailed discussion).

It sometimes happened that some mistakes went undetected in the first pass of error analysis. It was not considered a pedagogical issue that the students might have been informed of fewer mistakes than they actually had because it was judged – with all due respect to the students – that they had enough mistakes to deal with even if the error analysis was somewhat superficial.

Of course, for the project to be as reliable as possible, all the mistakes ought to have been detected. Missed mistakes were recovered when the database was revamped from time to time as part of its regular maintenance. False alarms, the tagging of expressions that were indeed not erroneous, were also known to happen – luckily, only in small numbers, and they were of course pruned out as soon as they were detected.

2.3.3 The error types in the course Production of Written Texts

The categories for the error analysis were devised by the committee assigned by the study board in 2007 to reform the course Production of Written Texts. Thus, it had been made prior to and irrespective of the present project. Nevertheless, it was adopted for the project with only few modifications.

Some new error categories were added in order to improve the quality of the feedback given to the students, and were thus not implemented for the sake of the project. On the other hand, some of the existing error types were subdivided and the macro categories established specifically for the project. Table 2-1 lists the error types with the two subdivisions which were performed manually. Subdivisions of error types which were done in software are listed in Table 2-2.

The error categories *sf* (style) and *tsf* (punctuation) were subdivided manually in order to facilitate an ensuing automated frequency analysis of the various sub-

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types of these error categories. This would otherwise have required human intervention because it would have been too time consuming to create a script that could evaluate reliably whether a comma or another punctuation mark was missing, or whether a stylistic mistake was of grammatical or semantic nature. Therefore, these two error types were subdivided during the standard error-analysis process by me.

Since these subdivisions were instigated for this project after 2012, all texts that had been error analysed before or were error analysed by a colleague had to be manually (in fact, semi-automatically) upgraded to include the subtypes. The specifications of the subtypes were not advertised explicitly to the students although it was, of course, not kept as a secret if somebody asked, which only very seldom happened.

Table 2-1: The error types used in *Production of Written Texts*

Codes	Original Danish names	Brief explanation	Examples with corrections
adjf	adjektivfejl	Adjective mistake, e.g. the comparative form is used instead of the positive form	<i>She is an older lady.</i> [elderly]
af	artikelfejl	Missing or wrong article	<i>He is professor.</i> [a professor]
asf	aspektfejl	Wrong aspect: the progressive is used instead of the nonprogressive or vice versa, or the perfect is used instead of the nonperfect or vice versa.	<i>Vestas is producing wind turbines.</i> [produces] <i>He has talked with his supervisor last week.</i> [talked]
begf	begyndelsesbogstavfejl	Lowercase letter instead of uppercase letter or vice versa	<i>We meet on wednesdays.</i> [Wednesdays]
bf	bøjningsfejl	Wrong inflection	<i>She cutted her finger.</i> [cut]
df	derivationsfejl	Wrong derivational affix	<i>It's beneficious to you.</i> [beneficial]
dif	diatesefejl	Wrong voice of the verb	<i>They have been argued the whole day.</i> [arguing]
gf	glosefejl	Wrong wording	<i>Vestas produces windmills.</i> [wind turbines]
gnf	genitivfejl	Wrong form of the genitive	<i>Peters brother</i> [Peter's]

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Codes	Original Danish names	Brief explanation	Examples with corrections
if	idiomfejl	Wrong wording of a fixed expression	<i>On the other side,...</i> [hand]
kf	kongruensfejl	Agreement error	<i>Peter love Sue.</i> [loves]
konf	konstruktionsfejl	Wrong syntactic construction	<i>There are produced many wind turbines in Denmark.</i> [Many wind turbines are produced in Denmark.]
mf	modalfejl	Wrong modality	<i>He should go to work yesterday.</i> [had to]
mif	misforståelsesfejl	Misunderstanding <ul style="list-style-type: none"> - in summaries, of a point of the original text - in free composition, of the task 	anything
nf	numerusfejl	Wrong number	<i>He has several house.</i> [houses]
of	oversættelsesfejl	Wrong translation	anything...
okf	ordklassefejl	Wrong part of speech	<i>I look forward to see you.</i> [seeing]
osf	ordstillingsfejl	Wrong placement of a syntactic constituent	<i>He reads often newspapers.</i> [often reads]
pf	pronomenfejl	Wrong pronoun	<i>I saw me in the mirror.</i> [myself]
prf	præpositionsfejl	Wrong or missing preposition	<i>He thought on her.</i> [of]
rpf	relativpronomenfejl	Wrong relative pronoun	<i>Companies there produce wind turbines tend to be profitable.</i> [that/which]
sf	stilfejl	Stylistic mistake	
	contr	contraction	<i>I'd</i> [I would]
	gram	grammatical	<i>He got fired.</i> [was]
	lex	lexical	<i>He got a message.</i> [received]
	salut	wrong/missing salutation	<i>Dear Richard</i> [Dear

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Codes	Original Danish names	Brief explanation	Examples with corrections
			<i>Mr Madsen</i>
smf	sammenhængsfejl	Cohesion mistake, e.g. unclear reference	<i>Vestas is a Danish company. They produce wind turbines. [it]</i>
ssf	sammenskrivningsfejl	The elements of a compound are written separately, or an expression is compounded erroneously.	<i>wind mill [windmill], energycompany [energy company]</i>
stvf	stavefejl	Spelling mistake	<i>dekrepitude [decrepitude]</i>
subf	substantivfejl	Noun mistake	unattested, it was never used in the error analysis of any of the texts
tf	tempusfejl	Tense mistake	<i>He said he will come. [would]</i>
tsf	tegnsetningsfejl [no extra sign]	Punctuation mistake the punctuation mark is incorrect (should be deleted or replaced by another one)	<i>He said, he would come. [no comma]</i>
	c	comma is missing	<i>If it rains[,] we'll visit the caves.</i>
	n	a punctuation mark other than the comma is missing	<i>Did you like it[?]</i>
uf	udeladelsesfejl	Something that should be present is left out, or something that is present should be omitted	
vf	verbalformfejl	Wrong construction of the verb phrase	<i>The clothes are expected delivered soon. [to be delivered]</i>

The students were given only the code of the error type for a mistake they had made. The codes were based on the Danish names of the error types because the original version of this list had been developed for all the languages taught in the Department of Business Communication, English, French, German and Spanish. To follow suit, also the error types that were introduced by me later, for instance *df* (derivation mistake), were given Danish names even though they were not meant to be used in

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the courses of the other languages. In the case of the error types that have subtypes, two codes were given (for example *tsf c*). Figure 2-1 (reprint of Appendix B in Madsen 2014) shows an example of how the students were provided with feedback based on the error analysis.

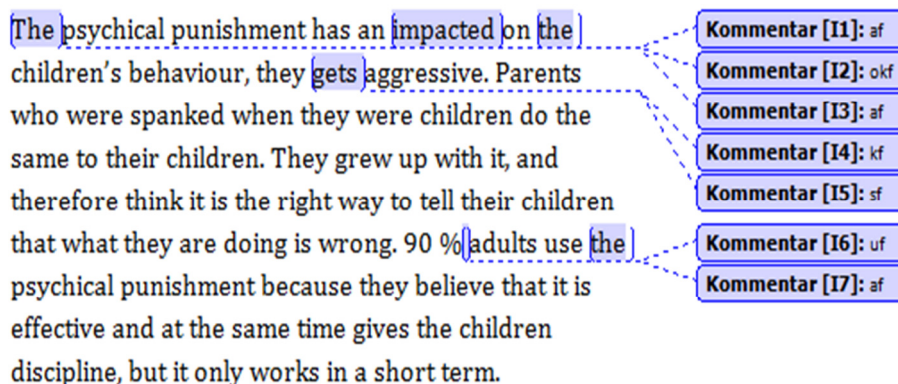


Figure 2-1: An example of the error analysis

Apart from the manual subdivision of the *sf* (style) and *tsf* (punctuation) error types, the database keeps account of a mechanised subdivision of the error types *af* (article), *begf* (lower/upper case letters), *gnf* (genitive), *pf* (preposition), *ssf* (compounding) and *uf* (omission). These pieces of information were computed in an automated process when the students' texts were analysed for the frequency of the error types and the metadata extracted.

Some of these pieces of information are present implicitly in the description of the error types in Table 2-1. Table 2-2 below tabulates the abovementioned error subtypes. *Tsf* (punctuation) is included in its entirety for convenience because this error type was subdivided both manually and automatically.

The reason for only distinguishing between comma and non-comma punctuation marks, and not making a finer distinction within the non-comma subtype, is that the vast majority of punctuation mistakes have to do with comma, and each of the other punctuation marks separately on its own pales in comparison to the comma. If the interest should arise, it would of course be possible to re-analyse the corpus automatically in order to assess the occurrence of problems with any individual punctuation mark.

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Arguably, other error subtypes could have been established as well, and some were in fact considered, for instance a subdivision of *smf* (cohesion/coherence) into deviations in the use of pronouns and conjunctions, respectively. The ones listed here were implemented because at the beginning of the project, they appeared to be interesting for closer scrutiny, and therefore, they were incorporated into the script that made the routine frequency analysis of error (sub)types.

Later, when the need arose for the subdivision of other error types, for instance of *osf* (syntax) and *rpf* (relative pronouns), for a specific article, it was handled by a combination of purpose-made scripts and manual analysis. See the applicable articles for details on said error subtypes. The subtypes established for specific articles all belonged to the same macro type as the “mother” error type, thus, there was no need to modify the frequency analyser.

Table 2-2: List of error subtypes which were processed automatically

Error type	Error subtype	Examples
af, article mistake	An article is missing.	<i>He is professor.</i>
	The definite article is used erroneously.	<i>The love is in high demand.</i>
	The indefinite article is used erroneously.	<i>She gave me an advice.</i>
begf, capitalisation mistake	Lowercase starting letter is wrong.	<i>joey Tribbiani</i>
	Uppercase starting letter is wrong.	<i>a Table</i>
	Inconsistent use of upper-/lowercase letters within an expression	<i>minister of Finance</i>
gnf, genitive mistake	Apostrophe is missing.	<i>Peters house</i>
	Apostrophe is misplaced.	<i>Peters' house</i>
	The suffix -s is missing.	<i>Peter' house</i>
pf, preposition mistake	Preposition is missing.	<i>He disposed the garbage.</i>
	Preposition is wrong.	<i>He disposed off the garbage.</i>

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Error type	Error subtype	Examples
ssf, compound- ing mistake	A compound is written separately.	<i>sand box</i>
	Words written together erroneously	<i>financeminister</i>
tsf, punctuation mistake	The comma is incorrect (should be deleted or replaced by another punctuation mark).	<i>He said, he would come. [no comma]</i>
	Comma is missing.	<i>If it rains[,] we'll visit the caves.</i>
	A punctuation mark other than the comma is incorrect (should be deleted or replaced by another punctuation mark including comma).	<i>Peter prefers cider; and Sue wine.</i>
	A punctuation mark other than the comma is missing.	<i>Did you like it[?]</i>
uf, omission mistake	Something that should be present is left out.	
	Something that is present should be omitted.	<i>The content of this cell is rubbish.</i>

The error types were grouped into three macro types, grammatical (*gram*), semantical (*sem*) and orthographical (*orto*) errors. Subtypes of error types were assigned to the macro types on an individual basis, meaning that different subtypes of the same error type may belong to different macro types. This is the case for the subtypes of *sf* (style) and *gnf* (genitive).

Table 2-3 below shows the classification of error (sub)types into macro types. Subtypes of error types are designated by a lighter hue of the colour of the “mother” error type. The error type *subf* is not assigned a macro type because it was never used, and it is unclear what it should/could have been used for.

Table 2-3: Overview of error types, subtypes and macro types

Error types	Subtypes	Macro types
adjf (adjective)		gram

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Error types	Subtypes	Macro types
af (article)		
	missing article	gram
	definite article wrong	gram
	indefinite article wrong	gram
asf (aspect)		gram
begf (letter case)		
	lower case wrong	orto
	upper case wrong	orto
	inconsistent in multiword expressions	orto
bf (inflection)		gram
df (derivation)		gram
dif (voice)		gram
gf (glossary)		sem
gnf (genitive)		
	apostrophe missing	orto
	apostrophe misplaced	gram
	suffix missing	gram
if (fixed expression)		sem
kf (agreement)		gram
konf (structure)		gram
mf (modality)		gram
mif (misunderstanding)		sem
nf (number)		gram
of (translation)		sem

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Error types	Subtypes	Macro types
okf (part of speech)		gram
osf (syntax)		gram
pf (pronoun)		sem
prf (preposition) ³		
	missing	sem
	wrong	sem
rpf (relative pronoun)		gram
sf (style)		
	contraction	orto
	grammatical element	gram
	lexical element	sem
	salutation	sem
smf (cohesion/coherence)		sem
ssf (compounding)		
	should be written in one word	orto
	should be written in several words	orto
stvf (spelling)		orto
subf (noun)		?
tf (tense)		gram
tsf (punctuation)		

³ After the publication of Madsen 2014 (Section 6.1), mistakes with prepositions were reclassified as belonging to the semantic macro type. The thought behind the original classification of grammatical macro type was that prepositions are typically considered function words and thus belonging to grammar, not to lexis. However, I then decided that the meaningfulness of prepositions – no matter how fuzzy and idiomatic it might be – deserved more appreciation.

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Error types	Subtypes	Macro types
	comma missing	orto
	non-comma missing	orto
	comma wrong	orto
	non-comma wrong	orto
uf (omission)		
	missing	
	superfluous	
vf (verb phrase)		gram

The error type *uf* de facto constitutes a fourth macro type of its own. I attempted to use this error type as a last resort only. Whenever one of the other error types could refer to a missing element of its type, for instance a missing article or preposition, that error type was used instead of *uf*. The occurrences of this error type have not yet been analysed. Things that have triggered this error types were e.g. missing dates and addresses in free compositions portraying business letters.

The macro types were introduced in order to be able to calculate more meaningful statistics since the individual error types may not have been represented in a statistically significant number on their own in a sample, but combined into a macro type, they may. In addition, as discussed in Section 2.3.4, it was sometimes difficult to assign a mistake to an error type unambiguously. Hence, combining error types into macro types made the statistical analysis more robust.

2.3.4 Challenges with the error types

A major challenge was posed by the demarcation of the error categories. The categories had not been defined clearly, and it soon became obvious that the categories often overlapped, and thus many mistakes could not be assigned unequivocally to one single error category. For instance, a mistake such as *Do you consider yourself well prepared?* when the subject is meant to be plural could be equally well labelled as *kf* (agreement error), *nf* (number error) and *pf* (pronoun error).

In such cases, the choice of label may have been random or could depend on, for example, the topic in grammar class. If the current topic was say agreement, then that mistake was likely categorised as agreement error. If the current topic was parts

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of speech, the tag chosen was more likely to be pronoun error. In any case, the assignment of label may have been inconsistent and thus differ from occasion to occasion. Other dubious cases that have been noted include:

1. Should the word *costumer* intended as *customer* be labelled as *gf* (wrong choice of words) or *stvf* (spelling mistake)?
2. Should *American's* instead of *Americans'* be labelled as *bf* (inflection error), *gnf* (genitive error) or *nf* (number error)?
3. Should *it* in *Tax subsidies to oil companies should be cut, because it represents non green energy.* be tagged as *kf* (agreement error) or *smf* (error in co-reference)?

The fact that the categorisation of the students' mistakes was not done consistently in the early years did not have negative implications pedagogically since the students were always given correct, relevant and useful (even if not exhaustive) information, but it was a serious drawback for the statistical analysis in this project, which required consistent and unique categorisation.

Therefore, after the start of the project in 2012, conscious effort was made always to assign the same label to the same type of mistake even if another label might also be equally applicable. The following guidelines for labelling were adopted: Labels that are more specific should be preferred to labels that are more generic among the applicable labels, and labels of more trivial mistakes should be preferred to labels of more serious errors – giving the students the benefit of doubt as to their proficiency in English.

Thus, in cases such as 1 above, *stvf* (spelling mistake) was used because it is more trivial than wrong choice of words, which would suggest lack of lexical knowledge. In cases similar to 2, *gnf* was adopted because it is the most specific category. Similarly, in cases such as the first example in this section, *kf* (agreement error) was selected.

In cases such as 3 above, *smf* (error in cohesion/co-reference) was adopted partly because the error type agreement error was reserved for inter-clausal agreement, for instance subject-verb agreement, and partly in order to draw the students attention to the importance of co-reference as a means of creating cohesion in a text.

Of course, even by adhering strictly to the guidelines outlined above, it may not be possible to distinguish typos from other types of mistakes. This is especially the case with morphemes that consist of only one letter, for instance the suffix of the 3rd person singular present indicative. The missing *s* in say *He write many mails* may equally well indicate either the lack of knowledge of the agreement rules or an uncooperative keyboard. Likewise, the trivial fact that the keys *s* and *d* are adjacent and both represent frequently used suffixes that can even appear on the same verbal

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root (for example *types/typed*) may make it next to impossible to ascertain whether a mistake detected is a mere typo or of a more systemic nature.

In such cases, the choice of error type was not *stvf* (spelling mistake), but one of the applicable grammatical type, such as *kf* (agreement) or *tf* (tense). The more trivial error type of typos was not chosen – unlike in the case of lexical items (see above) – because of the very existence of the project. The purpose of the project was to uncover what parts of English grammar were challenging for Danish students. To accomplish this, every deviation that could possibly be considered as indicative of a grammatical problem had to be noted as such. It was left to a later statistical analysis to determine what tendency the deviations represented (see Section 2.3.1).

Assignments written before 2012 were re-analysed in order to make the error analysis of them conform to the standards of the project. The same re-analysis was also done with assignments that had been corrected by colleagues since other teachers may have had a different interpretation of the error categories due to the lack of a common standard.

2.3.5 Error analysis in the course English Grammar

In this course, the raw data produced by the informants were not running English texts, but answers to questions concerning grammatical phenomena. In short, the students had to give grammatical terms as responses. The error analysis which was fed back to the students was only supposed to inform them whether their answers were correct or incorrect. It was not required by the study regulations that the feedback be more detailed in a fashion similar to the one used in *Production of Written Texts*.

The questions were such that only one specific answer could be correct – at least within the theoretical framework that was taught in the course. The students were then expected to work out themselves what the correct answers were. Of course, if the students asked for it, further information on the nature of their mistakes was not withheld from them.

The feedback was done in this binary fashion because that was also how the exams were evaluated: If the students' response did not match the expected answer, or was missing, it was counted as incorrect, and they lost a point. It was a reasonable approach because the grammatical terms, which the students had to master and provide as answers, were mutually exclusive, and therefore their (in)correctness could not be graded on purely logical grounds. For instance, if a word is a noun in a given context, it is just as incorrect to label it say as an adjective as it is to label it as a preposition.

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It may be that different incorrect answers reflect different stages in a person's acquisition of grammar. For instance, it might be that calling a noun an adjective reflects a somewhat better understanding of grammar than calling it a preposition. However, I was not aware of such systematic differences – and to my knowledge, nor were my colleagues, as it was never discussed among us. Thus, no systematic attempt was made to provide the students with a kind of feedback that would let them know *how* incorrect their responses were.

Though, it must be noted that my feedback to the students did contain information as to whether the students' responses were incorrect but within the relevant category of grammatical information, or their responses were incorrect by not being in the relevant category. For instance, when giving response as to parts of speech, labelling a noun as a preposition is incorrect but within the relevant category of parts of speech. However, calling a noun say a direct object is incorrect by not being in the relevant category since a direct object is not a kind of part of speech, but a kind of clause constituent. Such an answer was considered incorrect even if that particular noun actually happened to function as or was a part of a direct object in its clause, because the response was irrelevant with respect to the question.

For the above reasoning, most of the statistics on the informants' standing in theoretical grammar were calculated from a binary distinction between correct and incorrect (including missing) responses. This notwithstanding, provisions were made in the project to perform a qualitative analysis of the students' responses, treating incorrect responses as not just wrong, but differentiating between them. A VBA script was created to make a detailed frequency analysis of all responses. However, aside from using it to satisfy my superficial curiosity from time to time, this script has not been put to use to make a systematic analysis because of focusing on other matters (see Section 8.1).

In order to be in line with the error analysis in *Production of Written Texts*, most statistical calculations in *English Grammar* too were done in terms of the number of incorrect responses. It was, for instance, more straightforward to do correlation analysis in this way. Detailed information is provided in Madsen (2014) in Appendix A.

2.3.6 The unit of error frequency in *Production of Written Texts*

The frequency of the error types was measured in terms of mistakes per 100 words, i.e. $\text{frequency} = \text{number_of_mistakes} / \text{number_of_words} * 100$. This unit was developed because the informants' texts were of differing length even in the case of free composition and summarising, which imposed an upper limit on the number of words allowed in the text (see Section 3.1.3 for details). Therefore, a unit was neces-

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sary which took such differences into account and thereby allowed the comparison of the linguistic precision of the informants regardless of how long a text they had written. The number of words was chosen as the baseline partly because in case the length of the informants' texts was limited, it was limited in terms of the number of words they were allowed to write, and partly because of issues with other conceivable baselines as explained below.

Even though the unit mistakes per sentences was calculated routinely as metadata, this unit was not used in further analyses for two reasons.⁴ For one, the number of sentences in an informant's text was uncertain. Without a complete morpho-syntactic analysis, what was considered a sentence was simply a sequence of words between two major punctuation marks or a line-break.

It was calculated from what Microsoft Word reports as the property *Sentences* of a document in Visual Basic. Since this property is blind to abbreviations, treating the period in for instance *approx.* as a sentence boundary, the number of sentences reported by Word had to be adjusted for such abbreviations programmatically. Therefore, the unit of errors per sentences was not found particularly meaningful and was not usually reported in my publications.

Second, even if the exact number of (matrix) clauses could have been determined, it would not have been a good unit for the comparison of the length of differing texts because a text can very well contain more sentences than another one and still be shorter in terms of words or characters as sentences have no fixed length. Sentences can consist of any number of words.

On the other hand, words in English and Danish have, for all intents and purposes, a fixed length because these languages exhibit relatively few inflectional forms, unlike agglutinative and polysynthetic languages. Danish does allow – and require – the writing together of compound words, which may seem to result in variable word length. However, it does not really matter if a given lexeme is expressed through a compound of words (roots) written together or through words written separately – as is typical in English – as long as the process is consistent throughout.

A unit of errors per characters was not considered as a viable unit of error frequency and never computed because even though characters are – unlike words and sentences of any definition – atomic units and could thus express the length of texts in absolute terms, they are – unlike words and sentences – no units of meaning. Therefore, it would not have felt intuitively correct to express the frequency of prob-

⁴ However, I often used the unit mistakes per sentences in my brief presentations of preliminary findings to my students because I believed that they could grasp this unit more readily than the more abstract unit mistakes per 100 words.

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lems (mistakes/errors) with some kind of meaning compared to the numbers of meaningless units.

The calculation of mistakes per words was scaled up by one hundred because the unit mistakes per words would have yielded too small numbers, which would have been more cumbersome to work with. The length of the texts was measured in word forms actually written, including words that were erroneous in one way or another, also counting words that were deemed for omission or compounding (error types *uf* and *ssf*, respectively, see Section 2.3.3). Punctuation marks were not included in the length of the texts although the number of punctuation marks in the individual texts was stored as metadata in the database.

If several mistakes – of differing types, of course – were indicated for a word or another linguistic unit, all the mistakes were remarked and counted as separate ones. See for instance comment 4 and 5 in Figure 1, which indicate two independent deviations of [*they*] *gets* [*aggressive*] as the conjugated form *gets* being incongruent with *they*, and the lexeme *get* being too informal for an academic text.

Also, if an informant committed the same mistake with the same linguistic element several times in the same text, all the occurrences were counted as separate mistakes. Thus, the frequency analysis of the mistakes is in fact a frequency analysis of tokens, not of (sub)types. It was considered to perform a frequency analysis of types instead of or beside an analysis of tokens because one might argue that recurring mistakes indicated the same piece of knowledge lacking and should therefore not be treated as though they might have different causes.

However, this idea was eventually dismissed for three reasons. First, because of the limited length of the texts, the actual difference – if any at all – between the two kinds of frequencies would have been negligible whereas the extra workload of having to determine what might count as the same type of mistake would have been significant. Second, the students had to get rid of *all* the mistakes in their texts regardless of what might have caused them and how similar they might be, and it was decided at the beginning of the project that its analyses should reflect the students' reality as closely as possible (Section 2.3 above). Third, for the sake of a possible distinction between mistakes and errors (see Section 2.3.1 below), it is in fact beneficial to count the occurrences of possibly related mistakes separately because it reinforces the statistical prominence of such a deviation from standard usage, revealing it being an error, not a mistake.

It should be noted that the unit mistakes per 100 words has no intrinsic upper limit. In principle, any number of mistakes can be committed in a text and any number of elements can be left out erroneously. This is in contradistinction with the error analysis of the home assignments and the exam in *English Grammar* because there

the number of possible mistakes is limited to the number of the questions that the informants had to respond to.

2.4 Philosophical considerations

This section places the project in the framework of the common dichotomies of induction vs deduction and qualitative vs quantitative research (Bryman 2012, Collin and Køppe 2008). If one should make this placement categorically, the project would be labelled deductive and quantitative. However, it is important to note that there were several inductive features and qualitative elements in it as well.

The project was primarily deductive because it relied on a prefabricated framework of analysis, namely error analysis, with its categories that had been established prior to (and independently of) the project. It then sought to verify various hypotheses. It was primarily quantitative since it used huge amounts of data (at least in humanistic terms) from a large number of informants and employed statistical calculations in order to make inferences about the research questions.

The primary inductive feature of the project was its very purpose. Since there was no explicit assumption as to what difficulties the informants might have with the acquisition of English and the learning of theoretical grammar, the answering of those questions was an inductive process. Only the framework within which the answers to the questions were sought – the framework of error analysis – can be considered deductive. However, even the framework itself was modified to some extent on the basis of the analysis of the data (as mentioned in Section 2.3 and its subsections), which was yet another inductive feature of the project.

Another inductive feature was the surveys used for the articles on relative clauses (Madsen 2015b and forthcoming, Sections 6.6 and 6.9, respectively), in which there were no pre-established categories for the classification of the use of relative pronouns (henceforth relativizers), or more precisely, for the deviations in their use from the one in standard English. The relevant categories had to be derived from the data. A similarly data-driven establishment of descriptive categories for syntactic deviations was one more inductive feature, which was practised for two presentations and one published article (Sections 6.3, 6.7 and 6.8, Madsen 2015c, respectively).

Despite the generally quantitative nature of the project, most of the data used in the project were actually qualitative, as defined in statistics, because they were categorical items (Urduan 2012). Most notably, error analysis yielded qualitative data since the error types are categorical items; they mutually exclude one another, and

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none of them is more or less erroneous than any of the others. It is true even if a given deviation may be difficult to classify unequivocally in practice (see Section 2.3.4 for a discussion of the challenges with classifying mistakes).

As noted in Section 2.3, there was no provision in the feedback system stipulated in the study regulations to mark how severe a given mistake might be, neither within the same type of error, nor across error types. Such a graded system would have yielded quantitative data because in this case, a concrete mistake or an entire error type would have counted as more or less erroneous than others. Not only the existence of a mistake could have been noted, but it could also have been stated *how* severe it was.⁵

On the other hand, the frequency analysis of the instances of the various error types did yield quantitative data since it was possible to state whether a given error type occurred more or less frequently than other error types.

The linguistic questionnaires afforded qualitative *raw* data since the linguistic expressions that had to be provided as responses were mutually exclusive. Of course, the frequency analysis of the occurrences of the various types of expression again yielded quantitative data.

The surveys on the informants' educational background furnished the project mainly with qualitative data since items such as which high school the informant attended and which languages they spoke are categorical. Only items such as the level of mastery of a language and length of stay abroad were quantitative. The psychometric surveys on the informants' attitude and motivation were designed to provide quantitative data by employing semantic rating scales and Likert-scales, preferably as part of summative rating scales (Spector 1992, Gillham 2007, DeVellis 2011, Dörnyei 2014).

2.5 Workflow

This section sketches the manner in which most of the work in the project was done.

Most of the raw data, i.e. the home assignments from all the semesters in both *English Grammar* and *Production of Written Texts* as well as the portfolio exams

⁵ From time to time, I considered developing such a system during the project, but never attempted to implement one because it seemed too time consuming relative to its being out of the scope of the project. Nevertheless, the results of the project may constitute a basis for developing such a feedback system for the students, see Section 8.1 on this thought.

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from spring 2015 and spring 2016 in *Production of Written Texts* were upon submission stored in a collection of Microsoft Word documents. This was the native document format of the vast majority of submissions. The exams in *English Grammar* were typed into and kept in Microsoft Excel workbooks. The results of the surveys were likewise downloaded into (if done via internet) or typed into Excel workbooks (if done on paper).

In the second step, the raw data were error-analysed and tagged manually or semi-automatically with the relevant comments indicating the location and the category of the mistakes detected (Figure 2-1). Once all the texts had been tagged in a submission round, these pieces of information, *metadata* in the parlance of this thesis, were extracted from the texts and stored separately in the database with the help of automatic VBA scripts. All the metadata were stored in Excel workbooks.

The Excel scripts also performed aggregate frequency analyses of the mistakes detected in a given text type for all the informants having produced that text type. Often, the metadata were used directly to create overviews (similar to the one in Table 3-6) and as co-participants in correlational analyses together with, for instance, psychometric data from the surveys mentioned above (see for example in Section 6.5).

In other cases, the texts in the corpus were searched directly for instances of interest, for example occurrences of relative pronouns (see further in Sections 6.6 and 6.9) and syntactic deviations (Sections 6.3, 6.7 and 6.8). Such searches were as far as possible automated with VBA scripts, and the search parameter could be any combination of already existing tags from the error analysis and linguistic expressions.

Upon completion of the search process and classification of the elements found, statistical analyses were performed in Excel. Instead of a dedicated statistical software package such as R or SSP, Excel was chosen because it works neatly together with Word – the host of the raw data, as mentioned above – and is quite flexible and capable of statistical computations (Baayen 2008, Falls 2011, Rasinger 2013, Carlberg 2014, Harmon 2014, Quatember 2014).

2.6 Other means of analysing

As mentioned in Section 2.3, methods of analysis other than error analysis were also considered, namely morpho-syntactic and lexical analysis, to be performed on the corpus. Even though they were not put to use in the project due to time and focus

constraints, they are briefly outlined here because their employment is planned for later.

2.6.1 Morpho-syntactic analysis

A complete morpho-syntactic analysis was envisaged in order to investigate how complex and sophisticated the informants' texts were syntactically. This would have meant the assignment of both a morphological and a syntactic label to each word in the informants' texts. The morphological label would have revealed the word's part of speech, and the syntactic label would have shown its syntactic function within its phrase and its phrase's function within its clause.

The information on the words' part of speech combined with the error analysis would have enabled an analysis of which parts of speech were most challenging for the informants. The information on syntactic function would have enabled a measurement of text complexity. Together with the error analysis, it would have given a more precise assessment of the informants' practical linguistic skills, possibly including the decision between errors and mistakes for the students on an individual basis. A frequency analysis of the morpho-syntactic structure of the informants' texts may also reveal avoidance strategies that ordinary error analysis cannot (Schachter 1974).

The morpho-syntactic analysis has not been done because it would have been extremely time consuming to do it manually on the hundreds of texts in the corpus. Nor has it been possible to find a reliable automated parser which could be used together with the project's database. Therefore, only a rudimentary measurement of sentence complexity was implemented in VBA scripts, which approximates words per sentences and sentences per texts (see also Section 2.3.6).⁶

2.6.2 Lexical analysis

A lexical frequency analysis would have served the purpose of determining how well developed the informants' vocabulary was. There did not seem to be a tradition in my department to train vocabulary acquisition explicitly, and the project had a strong attention to grammatical difficulties. Nonetheless, it occurred to me as the project progressed that some of the grammatical difficulties of the informants might in fact originate from lexical difficulties, i.e. having an inadequate vocabulary.

⁶ The syntactic analysis would have made it possible to perform precisely the seemingly trivial task of counting the number of sentences (matrix clauses) present in a text (cf. Section 2.3.6).

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It seemed from time to time that the students might have too few words at their disposal, and some students even expressed themselves that they had difficulties with reading the literature in English. The assumption that lexical and/or reading difficulties may impede learning (of grammar) is corroborated by Stenius Stæhr 2009, Henriksen 2009, and Elbro and Scarborough 2003.

A VBA script was in fact developed to make an automated analysis of the use of words by a group of informants comparing the lexical sophistication of the informants among themselves and against a dictionary of word frequencies. However, more pressing matters, i.e. the above-mentioned focus on grammar, have not yet allowed the testing and deployment of this tool for a purposeful investigation.

The script would make a lexical profile of the informants' texts by analysing the lexical variation in each text and by comparing each text to the others in the group with respect to the frequency of the words used. The script would also compare each text in the group to an already existing dictionary of word frequencies. It would itself compile a frequency list which characterised the given group of informants so that different groups could be compared. Of course, the script would include in its analysis only words that were not judged as erroneous in any way in the error analysis.

2.7 Composition of the corps of informants

This section gives an overview of the group of informants who volunteered to participate in the project. The overview is given because it was a matter of considerable debate whom to enlist as informants, as the object of investigation in the project, i.e. whom to consider Danish students.

Since one of the theories that are used in this study, the theory of cross-linguistic influence, claims that one's already acquired languages influence the acquisition of a new language, it is a legitimate question to ask whether and if so, how, to include bilingual⁷ students as informants. Based on this theory, it is plausible that bilingual students face different challenges with English than Danish monolingual students do.

⁷ The term bilingual here refers to people who acquired two or more languages in their *childhood*, one of the languages being Danish. That is, the term implies early childhood bi- or multilingualism. By the time of participating in this study, all the informants had become bi- or multilingual to some extent.

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Also for this reason, and as described in Section 3.2.1.1, a survey of the Danish students' educational background was conducted from the academic year 2012-2013 onwards. One of the purposes of this survey was to uncover the linguistic background of the informants so that a decision could be made as to the selection of informants.

Table 2-4 displays the statistics of the Danish informants' linguistic background. Since not all the informants who have contributed to the database in one way or another responded to the survey on educational background, the number of bilingual informants might be somewhat larger. The informants were not asked how they acquired the languages which they reported, nor were they asked about the level of mastery of their languages in childhood.

Table 2-4: The Danish informants' linguistic background

Academic year	Total number of informants (number of respondents in this survey)	Reportedly bilingual informants	Languages reported apart from Danish
2012-2013	58 (52)	6	Arabic, Armenian, Bosnian, Dari, English, Faroese, French, German, Greek, Hebrew, Italian, Korean, Mandinka, Romanian, Somali, Spanish, Swahili, Swedish, Swiss German, Tamil, Thai, Turkish, Vietnamese, Wolof
2013-2014	118 (42)	15	
2014-2015	83 (70)	23	
2015-2016	118 (67)	16	

Especially in 2014-2015, a large number of informants reported having learned English in childhood. However, it seems unlikely that it should reflect having been brought up in an (at least partially) English-speaking household. It is more likely a reflection of having picked up English from for instance television and computer games. The same is probably true of the reports on other closely related languages, such as German and Swedish. These languages are not only related to Danish, but are also in close geographical proximity to Denmark, which makes it easy to pick them up for people who grow up or live in the border areas. Nevertheless, these informants are included in the group of reportedly bilingual informants. No data on their linguistic background are available for the Slovene and Serbian informants.

After lengthy deliberation, I decided that the objective of this project was to investigate the acquisition of English of the "average" Danish student, "average"

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being defined as a student who has been brought up in the Danish education system regardless of ethnic or geographical origin, citizenship and regardless of being bi- or monolingual in childhood. The Danish education system encompasses for the purpose of this study the schools in the overseas areas of the Kingdom of Denmark, namely Greenland and the Faroe Islands, where Danish is an obligatory language to learn.

Hence, only students that did not attend Danish schools in their childhood and adolescence were excluded from the study. Three such informants were encountered during the project. All other informants were “lumped” together in the analyses. After this decision had been reached, the potential informants from before 2012 could also participate in the project even though their linguistic background was not known, only that they attended the Danish education system.

The reason for this decision was partly statistical, partly pedagogical. It was statistical because it was discovered that only about 25% of the informants had a reportedly bilingual background, and they had a varied background involving various languages, even English, apart from Danish. Consequently, it would have made little sense statistically to analyse the group of bilingual students separately from the group of monolingual students because the bilingual group was rather heterogeneous and none of its subgroups was represented by a statistically significant number of informants.

The decision not to remove the bilingual informants from the study was also made on pedagogical grounds because one of the goals of the project was to provide insights for the improvement of the teaching of English. Since the bilingual students were and would continue to be an inalienable part of the classroom, the insights should also benefit them.

2.7.1 The demographics of the informants

In all three countries in which the project collected data, Denmark, Slovenia and Serbia, freshmen were recruited as informants for the project. This had to do with the fact that *English Grammar* and *Production of Written Texts* were the only courses that specifically targeted the improvement of the Danish students’ linguistic abilities, and these courses were offered to freshmen.

Thus, as far as the Danish informants were concerned, the choice of freshmen was given, and in order to have a corps of comparable informants, freshmen had to be recruited in Slovenia and Serbia as well. Table 2-5 summarises the basic demographic data of the informants. The number of informants reflects the total number of informants that have contributed to at least one field of the database in a given

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academic year. The age of the informants was their age at the start of the respective academic year.

Table 2-5: Basic demographic data of the informants

Academic year	Danish informants			Slovene informants			Serbian informants		
	♀	♂	Avg. age	♀	♂	Avg. age	♀	♂	Avg. age
2009-2010	39	17	22.07						
2010-2011	40	24	21.49						
2011-2012	54	43	21.61						
2012-2013	35	23	21.79						
2013-2014	62	56	21.37						
2014-2015	50	33	21.88	10	7	n/a			
2015-2016	73	45	21.48	7	4	19.69	21	2	19.85
Total	353	241		17	11		21	2	
645	594			28			23		

The fact that the Danish informants were on average about two years older than both the Slovene and Serbian informants may have the following reason.

As is standard in Europe, altogether 12 years of education in primary and secondary school is considered mandatory in Denmark in order to gain access to the tertiary level of education (Danish Ministry of Education 2017a). Children start school at the age of six, and primary school is meant to consist of nine grades, and secondary school of three grades.

However, most Danish children attend a so-called year zero in school as well, and some also an extra tenth year. Thus, they already tend to be one year older than their Slovene and Serbian counterparts are when finishing their secondary education. Furthermore, it is customary in Denmark to take a sabbatical year before entering a university, which is to my knowledge not as common in other countries.

2.8 What the project did not do

There was one type of investigation that was left out from the project intentionally even though the circumstances would have provided a marvellous opportunity to do it. Given that I had parallel classes in almost all the semesters, it would have been straightforward to compare the effectiveness of two different teaching methods or two different teaching materials. However, this opportunity was dismissed on ethical grounds.

In other studies in which teaching methods have been compared (Spada 2015), only the speed of acquisition was at stake for the informants. As far as I can gather, it was not detrimental in any significant manner for either the test group of informants nor for the control group should their speed of acquisition be slower than that of the other group.

However, for my informants slower or less adequate acquisition of the curriculum might very well have resulted in lower grades. It would have been discriminating for those informants who would have been subjected to the teaching method or material which would have turned out to be inferior. It would have put them at disadvantage compared to that group of students who would have happened to be exposed to the superior teaching method or material. Therefore, I judged it ill advised to conduct such experiments with my informants. This project had to be as non-invasive as possible so that none of the informants would feel ill affected by it.

3 Data

This chapter gives a detailed overview of the data that were used in this project, and of how they were collected. As mentioned in Chapter 2, the project drew on a database that contains both a corpus of naturally occurring data and data elicited specifically for this project. The corpus was annotated with the results of an error analysis.

The articles that were written as part of this study were all based on analyses derived from various parts of the database. The database has not been exhausted yet. Not only is it possible to devise further ways of analysing the data, but not even all the data and metadata have been put to use in this project thus far; hence, the database is still an unexhausted goldmine for additional analyses in the future. Chapter 8 lists some of the possibilities for continued research.

Data elicited specifically for this project were collected from 2013 onwards by means of various types of surveys. These surveys were, for practical reasons, administered in the courses English Grammar and Production of Written Texts, but were not part of the curriculum. This entails that only my students did these surveys; the students of my colleagues did not.

Even though the time pressure was very high in both courses due to the low number of lessons, it was decided to administer the surveys in the regular classes in order to increase the yield even to some detriment of the depth of the surveys. It was feared that trying to persuade the students to do the surveys in their spare time would be a futile attempt (Gillham 2007, Dörnyei 2014). In order to alleviate the extra workload caused by having to do the surveys in the regular lessons, some surveys were split into two or more parts and the parts distributed over several lessons.

Some survey data were also collected from students at Maribor University, Slovenia and Belgrade University, Serbia from 2014 to 2016 in order to have a wider scope for the project and some objects of comparison. Most of these surveys were left for the students to do at their leisure, which unfortunately proved the abovementioned fear of low yields correct. Table 3-1 summarises the contents of the database used in the project, and subsections with further tables below elaborate on the individual parts.

Table 3-1: The contents of the database with references to expansions of details

	Corpus of naturally occurring texts	Surveys of elicited data
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Data

	Danish informants		Danish informants	Slovene informants	Serbian informants
Raw data	Home assignments and exams in <i>English Grammar</i> (Table 3-2)	Home assignments and exams in <i>Production of Written Texts</i> (Table 3-5)	The use of relativizers (Section 3.2.2.2)		
			Educational background (Appendix G)	One of the exams of English grammar that had been administered to Danish students (Section 3.2.2.3)	
			Attitude and motivation (Table 6-2, Table 6-3, Sections 6.2 and 6.5)		
			Initial grammatical knowledge (Section 3.2.2.1)		
Meta-data	Error analysis of the items above (Table 3-4)	Error analysis of the texts above (Table 3-6 and Table 3-7)	Frequency analysis of all the questionnaires above (Sections 6.2, 6.5, 6.6, 6.9)	Frequency analysis of the surveys on relative clauses	
				Error analysis of the grammar exam	

Unfortunately, it was only possible to enlist the help of my colleagues to a limited extent, as they were reluctant to contribute their students' works to the database even though full anonymity was and is guaranteed for all informants. Only Jesper Bonderup Frederiksen donated his students' texts in the academic year 2013-2014. Similar difficulties with the collection of data were also encountered elsewhere. This is the reason why there are data from only relatively few Slovene and Serbian informants.

3.1 The corpus of naturally occurring data

The corpus of naturally occurring data was compiled from the texts, exercises and exams that the students of International Business Communication in English at Aalborg University produced as part of their curriculum in the courses English Grammar and Production of Written Texts from September 2009 through June 2016. The

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following sections provide background information on the two courses and detailed description of the data that they provided.

3.1.1 Data collected in the course English Grammar

This course stretched over the first and second semesters, consisting of 10 and 9 sessions of 90 minutes, respectively. In the first semester, the students had to master basic concepts of morphological and syntactical analysis such as parts of speech, roots, affixes, clause constituents, phrase constituents, use of comma, etc. The second semester featured a detailed analysis of the verb phrase and the verbal categories of tense, mood, aspect, voice and person-number. In both semesters, focus was on grammatical theory, however, with frequent references to the course Production of Written Texts, which was dedicated to the practical mastery of written English.

The first semester in each academic year concluded with a written exam of theoretical grammar. The students were asked 100 questions (with the exception of the exam in 2015, see below in Table 3-2), which they had to answer within 2 hours without the use of any aid.⁸ The students had to answer 60 questions correctly in order to pass the exam. In the years 2009-2011 and again from 2014 onwards the exam was fine-graded, whereas in 2012 and 2013, it was simply pass or not pass. The results of the grammar exam played a crucial role in the analyses in the project.

Approximately 95% of the questions required no production of “ordinary” English, but had to be answered by naming the linguistic element that the given question concerned, by using linguistic terminology. Hence, the exam required only receptive knowledge of English besides metalinguistic knowledge. Section 3.1.2 below gives a detailed overview of the topics of the exams.

Questions were of the type *What is the underlined clause constituent?* or *What part of speech is “part” in this sentence?* At most, 5% of the questions required actual, albeit very limited use of English, involving the insertion of missing commas into sentences lacking commas – or the statement that no comma was needed in a given sentence, or the insertion of a missing relative pronoun.

The students had to hand in three home assignments each in both the first and second semesters. The home assignments had not been standardised before 2013, nor were they optimised for a statistical analysis. For this reason, home assignments prior to 2013 were not error-analysed and tagged with metadata in the database, and therefore, the following describes only the home assignments from the autumn of 2013 onwards. Home assignment 1 in the spring of 2014 is also missing because it was an unsuccessful attempt at introducing a different type of grammar home as-

⁸ Madsen (2014) contains a complete set of exam questions.

signment. In any case, the home assignments played only a minor role in the analyses thus far. Nevertheless, also the home assignments which have not been analysed yet are available for study in the future should the interest for it arise.

In the first semester, the assignments consisted of 100 questions each – just as the exam – although the composition of the question sets in the first and second assignments differed substantially from that of the exam. The reason for this was simply that the students could not reasonably be expected to know all the exam topics for the first two assignments. The third assignment, on the other hand, resembled the exam very closely. In fact, all the questions in all three home assignments in the autumn semesters were always composed of questions from previous exams. In both semesters, the students were given one week to complete the assignments, and they were allowed to use any aid except for human help.

In the second semester, the home assignments focused – besides a little repetition of first semester topics – on the new topics of verbal categories. The second semester did not conclude with a dedicated exam. In fact, until the academic year 2014-2015, there was no exam at all in grammar at the end of the second semester. This explains the meagre number of informants in the spring of 2014. However, in the spring terms of 2015 and 2016, the home assignments of the second semester formed part of the combined portfolio exam of Grammar and Production of Written Texts. This is the reason why these home assignments consist of fewer questions than the home assignments in the other semesters.

Table 3-2 summarises the home assignments and exams in *English Grammar* that have been error-analysed. Some of the home assignments were the same; this was most notably the case in autumn 2015, in which all three home assignments were the ones that had been employed in the autumn of 2014.

Table 3-2: Overview of the home assignments and exams in *English Grammar*

Semester	Type of text	Submissions	Questions
Autumn 2009	Exam	56	100
Autumn 2010	Exam	62	100
Autumn 2011	Exam	54	100
Autumn 2012	Exam	58	100
Autumn 2013	Home assignment 1	92	100
	Home assignment 2	90	100

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Semester	Type of text	Submissions	Questions
	Home assignment 3	90	100
	Exam	100	100
Spring 2014	Home assignment 2	32	100
	Home assignment 3	30	100
Autumn 2014	Home assignment 1	77	100
	Home assignment 2	74	100
	Home assignment 3	73	100
	Exam	68	100
Spring 2015	Home assignment 1	63	45
	Home assignment 2	58	50
	Home assignment 3	60	50
Autumn 2015	Home assignment 1	86	100
	Home assignment 2	86	100
	Home assignment 3	84	100
	Exam	84	95
Spring 2016	Home assignment 1	76	45
	Home assignment 2	76	45
	Home assignment 3	73	45
Total		1702	148040

The home assignments and exams were evaluated, and the correctness of the students' responses was noted as metadata in a binary fashion as either correct or incorrect, as mentioned in Section 2.3.5. Missing responses counted as incorrect responses. Only the results of the first exam attempt at the end of the autumn semesters were stored in the database. The results of the reexams of students who failed the first exam were not kept and later discarded irretrievably because it was not stipulated to pay special attention to these students.

3.1.2 The topics of the grammar exam

The topics of the grammar exam varied somewhat from year to year partly due to changes in the study regulation and hence in the curriculum, partly due to preliminary results of this study pointing to the necessity of changing the way of examining.

I “inherited” the administration of the grammar exam in 2006. Because the changeover was rather sudden, there was no opportunity for me to receive explanation from my predecessor as to why the exam had been done in the way it had. In the ensuing years, I modified the exam in collaboration with my colleagues in small steps for the abovementioned reasons.

In 2015, the exam was intended to have the exact same composition as in 2014; however, a human error rendered the questions concerning comma unusable, and they had to be discarded summarily. Consequently, that exam consisted of only 95 questions. Table 3-3, which is an extension and simplification of Table 2 in Madsen (2015a), shows the composition of the exam since 2009, which is the first year from which the exam results have been kept.

The numbers before the colon in the table indicate how many questions out of 100 concerned the given topic. The numbers after the colon indicate how many logically possible different answers could be given to that type of questions. The sign ∞ indicates open questions, or questions with a very large number of logically possible answers.

Differing numbers of logically possible answers reflect differences in the terminology taught throughout the years. Up to the year 2009, Borg (2001) was used; thereafter Hjulmand & Schwarz (2012) was employed with a brief intermezzo. In the spring semester of 2012, Madsen (2012) was used, which featured a considerably more sophisticated terminology than the other textbooks. However, because this level of detail appeared excessively challenging in teaching, the use of this textbook was discontinued.

Table 3-3: Overview of the topics of the grammar exam

Academic years	2009	2010	2011	2012	2013	2014	2015
Topics							
Parts of speech	13:7	15:8	15:8	11:11	10:9	10:9	10:9

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Academic years	2009	2010	2011	2012	2013	2014	2015
Topics							
Clause constituents	21:8	20:9	20:9	20:15	20:10	18:10	18:10
Phrase vs. subordinate clause	12:2	10:2	10:2	10:2	10:2	8:2	8:2
Phrase types	15:5	10:5	10:5	10:8	10:5	10:5	10:5
Subordinate clause types	12:3	7:3	7:3	7:3	7:3	7:4	7:4
Subordinate clause finiteness	5:2	7:2	7:2	7:2	7:2	7:2	7:2
Number of matrix clauses in a paragraph	7:2	5:2	5:2	5:∞	5:∞	5:∞	5:∞
Comma	4:∞	4:2	4:2	4:2	4:2	5:∞	
Inserting relative pronoun	4:6	1:6	1:6	1:6	1:6		
Finding the subordinate clause in a matrix clause	5:∞						
Finding the correct sentence	2:4						
NP constituents		10:4	10:4				
Phrase constituents				10:7	10:5	9:5	9:5
Pronoun types		10:7	10:7	10:10	10:8	10:8	10:8
Verb form finiteness		1:32	1:32	1:32	1:32		
Semantic relations				3:8	3:8	5:8	5:8
Morphological analysis of a word				1:∞	2:∞		
Function of a morpheme						3:20	3:20
Finding dictionary form of a word's root						3:∞	3:∞

Until the year 2011, inclusive, the possible answers were actually provided in the exam questionnaire. The exam was thus essentially a multiple-choice questionnaire

except for the questions concerning comma and finding the subordinate clause embedded in a matrix clause in 2009. In 2012, it was decided by the study board that the grammar exam should be made more difficult, and thus the logically possible answers were removed from the exam questionnaire, making the questions appear open ended.⁹ Of course, questions whose possible answers were embedded in or implied by the question itself, such as those concerning finiteness and the choice between phrases and clauses, remained de facto multiple-choice types and even binary.

Two changes in the composition of the grammar exam were instigated based on considerations made in this study: the introduction of morphological analysis and an attempt to even out the allocation of questions to the individual topics of the exam. The morphological analysis was introduced based on Slabakova's bottleneck hypothesis (2014), which assigns great importance to the awareness of morphology in the acquisition of a second language, and based on my positive experience with teaching other courses in which morphology was given stronger prominence.

The need to allocate questions to the various exam topics more evenly was brought about by the statistical calculations to be performed (first expounded in detail in Madsen 2015a), which called for better testability and comparability of the topics. Testability, or reliability of testing, requires that a topic be probed by a certain minimum number of questions, and comparability requires that the topics be probed by (roughly) the same number of questions (Hatch and Farhady 1982).

However, these demands conflicted with other considerations: the wish to evaluate the knowledge of the students on as many topics as possible while still limiting the total number of questions to 100, and the preferences of my colleagues as to which topics to evaluate. Therefore, compromises were necessary, which allowed only five questions per topic (3+3 questions for morphology) as the minimum number of questions for the sake of testability – 10 would have been preferred, and it was not feasible to have the same number of questions for each topic.

Table 3-4 gives an overview of the results of the grammar exams between 2009 and 2015. Only those topics are shown which continued into 2015. The topic comma is displayed because it was left out in 2015 unintentionally. Green background indi-

⁹ I have sometimes observed that students give nonsensical answers to such apparently open-ended questions, for instance by providing the part of speech of a word instead of its syntactic function. For example, when asked about clause constituents, a student might call *beautiful* in *My wife is beautiful* an adjective, not subject complement. It has not been analysed whether the frequency of such nonsensical answers increased from 2012 onwards. Such answers were counted as simply incorrect just as other incorrect and missing responses in the analyses. However, as described in Section 2.3.5, the provision exists to make the analysis mentioned here.

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cates the topics whose average score surpassed the average overall score of the respective year. Magenta indicates the topics whose score remained below the average overall score. Since the different topics were probed by different numbers of questions, scores are given as a ratio of correct answers per number of questions. The overall average under Total was calculated from only the scores present in this table by ignoring discontinued topics.

Table 3-4: Overview of the results of the grammar exams

	2009	2010	2011	2012	2013	2014	2015	Total
Number of informants	56	63	54	58	92	68	84	475
Percentage of fails	5.4	15.9	13.0	29.3	26.1	16.2	23.8	19.4
Overall average	0.751	0.746	0.742	0.678	0.644	0.697	0.638	0.692
Parts of speech	0.76	0.71	0.81	0.73	0.74	0.65	0.66	0.718
Clause constituents	0.72	0.73	0.66	0.62	0.58	0.64	0.54	0.632
Phrase vs. subordinate clause	0.84	0.76	0.75	0.86	0.59	0.74	0.74	0.741
Phrase types	0.76	0.78	0.75	0.58	0.69	0.85	0.74	0.735
Subordinate clause types	0.63	0.69	0.71	0.62	0.59	0.59	0.47	0.604
Subordinate clause finiteness	0.82	0.83	0.72	0.88	0.73	0.74	0.67	0.762
Number of matrix clauses in a paragraph	0.75	0.81	0.78	0.58	0.58	0.74	0.51	0.664
Comma	0.71	0.69	0.78	0.88	0.79	0.67		0.754
Phrase constituents				0.61	0.69	0.68	0.72	0.681
Pronoun types		0.76	0.73	0.68	0.69	0.86	0.72	0.738
Semantic relations				0.56	0.66	0.69	0.63	0.639
Morpheme function						0.49	0.62	0.562
Root base form						0.46	0.56	0.515

As can be seen, there was no topic that was above average in all the years although several topics came close to it. In contrast, several topics were continuous and constant challenges for the students. For this reason, they can be safely assumed to embody the major difficulties that Danish students struggle with in the learning of theoretical grammar.

3.1.3 Data collected in the course *Production of Written Texts*

This course too was a part of the first two semesters, and it consisted of 7 sessions of 90 minutes in each semester. This course focused on the practical aspects of English, i.e. how to write correctly. However, frequent references were made to the theory taught in the course *English Grammar*. Hence, the two courses were closely connected to each other.

Students were trained in three genres in each semester. Two genres, free composition and translation from Danish into English, were present in every semester. The third genre in a semester was either summarising an English text in English or translation from English into Danish. In the first years, the choice between these two genres was made on a per semester basis upon agreement by the teachers teaching the course. From 2014 onwards, the study board opted solely for translation from English into Danish, abandoning summarising altogether.

In free composition, the students were given a broad topic, for instance a letter of apology to a business customer or a short advertisement of a product, on which they were free to elaborate, observing the stylistic conventions of the topic, and limiting themselves to a predetermined number of words, typically 200-300 words. In summarising, the students were given an English text, typically a newspaper article of some relevance to business communication, which they had to shorten down to 20% of the original, again observing the conventions of summaries and keeping within the allocated budget of words.

Exceeding the number of words allowed resulted in the rejection of the home assignment and in the obligation of re-writing and re-submitting. In case a student neglected to re-submit their rejected home assignment, the original version was error analysed for the project in order not to lose data merely on grounds of regulatory matters. However, this error analysis was not disclosed to the student.

The source text for the translations was typically a newspaper article, or excerpts thereof, of 250-400 words. As opposed to free composition and summarising, the translations were not limited in their length. Sometimes the translations involved a change in style as well, depending on the intended target audience. In such cases, the students were typically asked to produce a translation which was more formal in its tone than the source text.

Table 3-5 gives a detailed overview of the texts collected in *Production of Written Texts*. For an explanation of the so-called reflections in the autumn of 2015 and 2016, see below the table.

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Table 3-5: Basic statistics of the home assignments in *Production of Written Texts*

Semester	Text type	Number of submissions	Total number of words in all submissions	Average number of words per informant
Autumn 2010	Translation from English into Danish	44	16850	383.0
	Summary	26	6278	241.5
	Translation from Danish into English	33	13691	414.9
Spring 2011	Summary	41	11329	276.3
	Free composition	41	11356	277.0
	Translation from Danish into English	40	18640	466.0
Autumn 2011	Translation from Danish into English	45	21270	472.7
	Summary	51	14326	280.9
	Translation from English into Danish	45	17663	392.5
Spring 2012	Summary	38	10929	287.6
	Free composition	37	8893	240.4
	Translation from Danish into English	36	14565	404.6
Autumn 2012	Free composition	54	11940	221.1
	Summary	57	14797	259.6
	Translation from Danish into Eng-	55	19159	348.3

Data

Semester	Text type	Number of submissions	Total number of words in all submissions	Average number of words per informant
	lish			
Spring 2013	Free composition	36	9759	271.1
	Summary	37	6984	188.8
	Translation from Danish into English	36	14205	394.6
Autumn 2013	Free composition	91	23090	253.7
	Summary	84	15514	184.7
	Translation from Danish into English	88	31015	352.4
Spring 2014	Summary	71	23597	332.4
	Free composition	69	18134	262.8
	Translation from Danish into English	68	26539	390.3
Autumn 2014	Free composition	80	18080	226.0
	Translation from English into Danish	79	16717	211.6
	Translation from Danish into English	76	18094	238.1
Spring 2015	Free composition	63	12187	193.4
	Translation from English into Danish	65	20980	322.8
	Translation from	61	17985	294.8

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Semester	Text type	Number of submissions	Total number of words in all submissions	Average number of words per informant
	Danish into English			
	Reflection	55	20324	369.5
Autumn 2015	Free composition	45	10105	224.6
	Translation from English into Danish	45	11848	263.3
	Translation from Danish into English	45	12237	271.9
Spring 2016	Free composition	71	17308	243.8
	Translation from English into Danish	71	15663	220.6
	Translation from Danish into English	69	20425	296.0
	Reflection	63	26364	418.5
Total		2111	618840	293.15

The students were given one week for each home assignment and permitted to use any aid except collaboration with others. The home assignments handed in were subjected to an error analysis by the teacher of the course, in the manner mentioned in Section 2.3.2. Every mistake detected in the students' texts was classified into the predefined types and subtypes of errors. The teacher's remarks signifying the type of each mistake constituted the feedback to the students. The students were not told what the correct version might be. Of course, if they needed more feedback, they were welcome to ask questions as to the precise nature of their mistakes, which opportunity most students took advantage of.

Each semester concluded with a portfolio exam, which was introduced in 2007. In the exam, the students had to re-submit the three home assignments of the semes-

ter corrected based on the teacher's feedback concerning the type of mistakes. Apart from revising the texts, the students also had to explain in linguistic terms the mistakes that had been detected in their texts and their corrections in order to facilitate the improvement of their language awareness.

In the first years, the students had to explain each and every mistake they had made. From 2015 onwards, they had to explain only five of their mistakes. The teacher who had given the feedback determined which five mistakes would have to be elucidated. Instead of the requirement for the students to explain every one of their mistakes, the portfolios in the spring of 2015 and the spring of 2016 included the home assignments in the course English Grammar as well.

Furthermore, the portfolios in every semester had to be complemented with a so-called reflection, in which the students contemplated on their academic development, challenges they met, their strengths and weaknesses. The length of the reflection was not limited in exact measures; it merely had to be between a half and a whole A4 page.

The quality of all the parts of the portfolios influenced the grade of the students although all portfolios except the ones in the spring semesters of 2015 and 2016 were only pass/not pass. For this reason, only the reflections of the portfolios of the latter two semesters were also error-analysed since the determination of mere passability did not require such a detailed analysis of the students' work.

In fact, only the pressure to fine-grade the portfolios brought about the realisation that the linguistic quality of the reflection could also be used in the project as an indicator of the students' academic development. In any case, the error analysis of the reflections was never fed back to the students unless they explicitly asked for it, which no one ever did.

The revised versions of the home assignments, which entered the portfolio exam, were not re-furnished with tags reflecting their error analysis. Ideally, there would not have been any tags at all anyway since the students were supposed to correct their mistakes. The revisions were only considered objects to be graded. Although it would undoubtedly be interesting to investigate the students' ability to correct their home assignments on the basis of the error analysis (cf. Bitchener and Ferris 2012), that study was outside the scope of this project (though, see 8.6).

Therefore, the revised versions of the home assignments do not form part of the database. The metadata provided by the error analysis of the original home assignments were used extensively in this project, and the error analysis of the above-mentioned reflections provided a minor addition.

Table 3-6 below shows the aggregated account of error types with all their subtypes in all the texts which were analysed in the project. Numbers in white and

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green indicate values that are lower than the respective mean. Subtypes of error types are designated by a lighter hue of the colour of the “mother” error type.

Table 3-6: Overview of the mistakes detected in the texts in *Production of Written Texts*

Error (sub)types	Mean or macro type	Free compositions	Summaries	Transl. from EN into DA	Transl. from DA into EN	Reflections	Grand total ¹⁰
adjf (adjective)	gram	8	0	0	39	3	50
af (article)		187	235	75	750	61	1308
missing article	gram	81	113	37	352	55	638
definite article wrong	gram	56	110	37	357	1	561
indefinite article wrong	gram	50	12	1	41	5	109
asf (aspect)	gram	56	58	5	117	56	292
begf (letter case)		276	140	638	801	44	1899
lower case wrong	orto	125	35	389	217	14	780
upper case wrong	orto	119	83	156	263	14	635
inconsistent	orto	32	22	93	321	16	484
bf (inflection)	gram	90	63	294	288	19	754
df (derivation)	gram	0	0	97	8	3	108
dif (voice)	gram	10	5	4	20	6	45
gf (glossary)	sem	768	464	389	2122	115	3858
gnf (genitive)		28	138	166	296	5	633
apostrophe missing ¹¹	orto	21	102	152	259	5	539

¹⁰ The grand total includes the mistakes which were detected in the translations into Danish, too. Thus, it is not indicative of the informants' difficulties with English, but instead shows the magnitude of the project.

¹¹ This label is somewhat misleading for the translations into Danish. As opposed to English, which always requires the apostrophe in the genitive, Danish sometimes requires it, sometimes forbids it according to exact orthographical rules. In order to keep the table simpler, this

Data

Error (sub)types	Mean or macro type	Free compositions	Summaries	Transl. from EN into DA	Transl. from DA into EN	Reflections	Grand total ¹⁰
apostrophe misplaced	gram	0	1	0	5	0	6
suffix missing	gram	7	35	14	32	0	88
if (fixed expression)	sem	61	26	13	208	9	317
kf (agreement)	gram	190	330	173	981	62	1736
konf (structure)	gram	227	231	119	523	43	1143
mf (modality)	gram	47	24	15	140	4	230
mif (misunderstanding)	sem	177	234	19	31	4	465
nf (number)	gram	127	97	125	386	50	785
of (translation)	sem	2	21	1824	2290	0	4137
okf (part of speech)	gram	173	126	36	380	57	772
osf (syntax)	gram	203	78	140	427	26	874
pf (pronoun)	sem	10	4	0	8	3	25
prf (preposition)		409	187	169	934	147	1846
missing	sem	57	21	20	78	27	203
wrong	sem	352	166	149	856	120	1643
rpf (relative pronoun)	gram	43	39	41	124	9	256
sf (style)		238	383	1	430	27	1079
contraction	orto	87	95	0	95	0	277
grammatical element	gram	11	32	0	27	0	70
lexical element	sem	85	102	1	92	27	307
salutation	sem	55	154	0	216	0	425
smf (coherence)	sem	258	339	423	768	24	1812

subtype therefore subsumes for the translations into Danish every instance in which the apostrophe was used erroneously; in most cases it was in fact superfluous rather than missing.

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Error (sub)types	Mean or macro type	Free compositions	Summaries	Transl. from EN into DA	Transl. from DA into EN	Reflections	Grand total ¹⁰
ssf (compounding)		78	59	1165	271	7	1580
should be one word	orto	49	53	1059	220	6	1387
should be several words	orto	29	6	106	51	1	193
stvf (spelling)	orto	451	265	279	640	58	1693
subf (noun)	?	0	0	0	0	0	0
tf (tense)	gram	66	72	14	833	46	1031
tsf (punctuation)		1950	1358	2030	3878	445	9661
comma missing	orto	853	588	680	1362	276	3759
non-comma missing	orto	57	58	272	280	6	673
comma wrong	orto	817	511	692	1553	147	3720
non-comma wrong	orto	223	201	386	683	16	1509
uf (omission)		279	226	305	617	26	1453
missing element	uf	48	90	103	193	5	439
superfluous element	uf	231	136	202	424	21	1014
vf (verb)	gram	13	9	25	21	3	71
punctuation marks	n/a	17675	11702	14476	26166	4423	74442
grammatical errors	n/a	1458	1435	1177	5101	448	9619
orthographical errors	n/a	2863	2019	4264	5944	559	15649
semantic errors	n/a	1825	1531	2838	6669	329	13192
errors altogether	n/a	6425	5211	8584	18331	1362	39913
words	n/a	140852	103754	99721	227825	46688	618840
sentences	n/a	12028	5530	6010	12380	2277	38225
words/sentences	17.194	11.710	18.762	16.593	18.403	20.504	16.189
errors/100 words	5.831	4.561	5.022	8.608	8.046	2.917	6.450
errors/sentences	0.997	0.534	0.942	1.428	1.481	0.598	1.044

Data

Error (sub)types	Mean or macro type	Free compositions	Summaries	Transl. from EN into DA	Transl. from DA into EN	Reflec- tions	Grand total ¹⁰
grammatical errors/100 words	1.361	1.035	1.383	1.180	2.239	0.960	1.554
grammatical errors /sentences	0.237	0.121	0.259	0.196	0.412	0.197	0.252
orthographical errors /100 words	2.411	2.033	1.946	4.276	2.609	1.197	2.529
orthographical errors /sentences	0.407	0.238	0.365	0.709	0.480	0.245	0.409
semantic errors/100 words	1.850	1.296	1.476	2.846	2.927	0.705	2.132
semantic errors /sentences	0.317	0.152	0.277	0.472	0.539	0.144	0.345

As can be seen, translations were by far more replete with mistakes than texts of free composition and summarising. This is hardly a surprise, as having to handle two languages at the same time must be more taxing a task than having to use only one language at a time.

However, it may be unexpected that the informants produced more mistakes on average when translating into Danish, which they could be expected to know better than English. This general picture and certain concrete observations prompted the inclusion of the investigation of possible weaknesses that the informants might have with Danish (see Sections 6.7 and 6.8).

Table 3-7 shows the ten most frequent error types in the English texts alone. These together make up approximately three quarters of all the mistakes found in the informants' English texts.

Table 3-7: The top ten of error types in the English texts

	Error type	Frequency		Error type	Frequency
1	tsf (punctuation)	24.358%	6	stvf (spelling)	4.513%
2	gf (word choice)	11.073%	7	smf (cohesion)	4.434%

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	Error type	Frequency		Error type	Frequency
3	of (translation)	7.383%	8	begf (starting letter)	4.025%
4	prf (preposition)	5.353%	9	af (article)	3.936%
5	kf (agreement)	4.989%	10	uf (omission)	3.664%

Problems with the comma constitute about 80% of the punctuation mistakes, that is, close to 20% of all mistakes, which renders the comma the singularly largest source of mistakes. In fact, orthographical mistakes are the largest group of mistakes. All of them taken together – including the minor types not shown in Table 3-7 – exceed one-third (36.340%) of all mistakes. Semantic mistakes account for 33.049%, and grammatical mistakes for “mere” 26.946% of all deviations from standard English. The rest are omission mistakes (*uf*), which are also number ten in the top list.

3.2 Elicited data

Even though the corpus of naturally occurring data is sizeable, it did not and could not answer all the questions that the project sought to answer. Therefore, further data were elicited in surveys specifically for the purposes of the project in two broad categories, non-linguistic and linguistic. The surveys were administered in various ways, such as Google forms, Moodle’s quiz function (2016) and to a lesser extent on paper. The following subsections describe the elicited data in more detail.

3.2.1 Non-linguistic data

The non-linguistic data collected consist of educational background information about the students and their motivation and attitude to various issues concerning their studies. Non-linguistic data were only elicited from the Danish informants.

Non-linguistic data were not elicited from the Slovene and Serbian informants for two reasons (except for basic demographic information on age and gender). First, I did not want to outstay my welcome at my hosts’ since I was very much dependent on the Slovene and Serbian students’ willingness to do something that was indeed foreign to them. Therefore, I focused on the most essential and posed them as few questions as possible.

Second, even if willingness had been in great abundance, it would have been out of the scope of the project to include a socio-psychological study of the Slovene and Serbian informants. Therefore, it sufficed for me to merely ascertain that all the informants were comparable on the most essential account: being freshmen of English language studies.

3.2.1.1 Data on educational background

The elicitation of data on the Danish students' educational background went through some refinement after the first version of the survey in 2012-2013. Unfortunately, it was not possible to do a survey retroactively with the informants from the years prior to 2012 or re-do the newest version of the survey with the informants from previous years. Thus, only the informants' age and gender are known from before 2012, and data collected from 2012 onwards are not completely comparable across the academic years.

Appendix G lists the items surveyed beginning in 2012-2013. The surveys on educational background were administered some time into the academic year in order to distribute the extra workload caused by the surveys evenly because some linguistic surveys (cf. Section 3.2.2.1) had to be done at the beginning of the academic year, and because the information collected in the surveys on educational background is static. It would not change during a semester; therefore, it did not matter when this information was elicited.

The data on the educational background were used to some extent in Madsen 2014 (Section 6.1). The findings therein suggest that these data deserve further research.

3.2.1.2 Data on attitude and motivation

As the project progressed, I realised that not every aspect of the informants' linguistic performance could be explained on purely linguistic grounds. Therefore, I decided to perform an analysis of the students' motivation to study, attitude to various linguistic matters and their linguistic self-awareness.

I had carried out some rudimentary survey in the Department of Business and Social Sciences, Aarhus University, where I had been a part-time teacher in previous years. I then made a somewhat more concerted effort in my home Department of English Business Communication in the academic year 2013-2014. The results of this were presented at a national conference in 2014 and are described in Section 6.2 and summarised in Table 6-2 and Table 6-3.

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The final attempt was loosely based on Gardner's Attitude and Motivation Test Battery (1985) and of a pre-test-post-test design. The pre-test survey was administered on the first day the students had class with me in the autumn semester of 2014, and the post-test survey was administered on the last day of that semester. Its findings were published in Madsen 2016 (Section 6.5).

3.2.2 Linguistic data

Various questionnaires were employed to probe linguistic phenomena which were underrepresented in the corpus of naturally occurring texts, or whose use was to be tested under specific circumstances. As far as possible, these extracurricular surveys were also used pedagogically, providing instantaneous feedback to the students about their performance.

3.2.2.1 Linguistic knowledge upon entry

One of the major questions for the project was how much knowledge of theoretical grammar the Danish students brought with themselves from high school upon entering the university. There was no entrance exam to the Department of Business Communication, and the students gained admission depending on their high-school grades. Since the high-school grades were not particularly revealing, no one knew what level of practical command of written English and of theoretical grammar the students had reached by the time they entered the university.

A survey, called survey 0 in the database, was designed to measure the students' knowledge of English upon their entry. It was introduced in the autumn semester of 2014 and administered on the very first day the students had *English Grammar*. Originally, this survey had been envisaged to serve as an object of comparison for the grammar exam so that the students' development could be gauged.

However, I had to realise that only within two topics of the grammar exam, parts of speech and clause constituents, could the students' knowledge be tested because only these two topics could reasonably be expected that the students had been taught in school. The survey was composed of 15 questions concerning clause constituents and 9 questions about parts of speech, all taken from the grammar exam of 2005.

Ten more questions tested whether the students could distinguish grammatically incorrect sentences from correct ones. Some of the incorrect sentences were taken from previous students' texts in *Production of Written Texts*, containing typical Danishisms. Typically, the students performed better on the grammaticality-judgment part than on the linguistic terminology part of the survey.

3.2.2.2 *Relativization*

Another major topic of the linguistic surveys was the use of relative clauses and relative pronouns. Based on informal pre-project observations, a contrastive analysis of English and Danish and preliminary statistics of the project, I reckoned that the use of English relative pronouns might be one of the major grammatical challenges facing Danish students. The articles Madsen (2015b in Section 6.6, and forthcoming in Section 6.9) were dedicated to this issue.

As mentioned in the Introduction, the Slovene and Serbian informants were to serve as an object of comparison for the testing of the theory of cross-linguistic influence. These informants were given the same questionnaires on relativization which the Danish informants received (see Appendix H).

3.2.2.3 *Grammar exam for the Slovene informants*

In 2014, Slovene informants were given the same exam in theoretical grammar that the Danish students had just taken. Since it was an extracurricular activity for the Slovene students, it counts as elicited data in the project's terminology. The Slovene students performed markedly poorer than the Danish students had; only 1 out of 17 would have passed, and only barely.

Admittedly, the students were not prepared for the test. Neither were they informed of the content of the upcoming test in advance, nor did their curriculum focus on theoretical grammar. Especially the latter made me realise how much weight theoretical grammar is given in my department. Nevertheless, despite whatever weaknesses the Slovene freshmen may have with theoretical grammar, their practical command of English does not seem any less developed than that of Danish freshmen, judging from informal conversations and chats with them.

4 Theory

As described in Chapter 2, this study is highly data-driven in its approach. Nevertheless, three theories were tested explicitly in the project: the contrastive hypothesis, also called the theory of cross-linguistic influence (Lado 1957, Odlin 1989, Ringbom 2007, Jarvis and Pavlenko 2008, Jarvis 2011), Krashen's monitor theory (1978, 1982), and the accessibility hierarchy of relativization by Keenan and Comrie (1977).

The sections below elaborate the theories mentioned above and why they were selected for testing in the project. It is not my aim to give a detailed list of pros and cons of the theories in this thesis; it has been done by numerous authors (for example, McLaughlin 1978, and Krashen himself concerning contrastive analysis (1981: 64ff). Instead, I want to focus on testing the theories against my data. As Mackey expressed it (2014), it is important to test and re-test theories continuously if social sciences are to approach the rigour of natural sciences. The theories that provided the conceptual background of the project are described in Chapter 5.

4.1 The theory of cross-linguistic influence

The theory of cross-linguistic influence was the backbone of the explanatory work. For it was assumed that the majority of the deviations from standard English that would be detected in the informants' texts and responses could be explained by reference to the influence which the Danish language, the mother tongue or second language of the informants, exerted on the informants' English. Madsen (forthcoming, in Section 6.9) attempted to measure to what extent Danish did influence the informants' English, and Madsen (2015c, in Section 6.8) measured the influence that English might exert on the informants' Danish.

In its original formulation (Lado 1957), the theory of cross-linguistic influence assumes that a learner's mother tongue (L1) influences the language which the learner is acquiring (L2). The hypothesis predicts that areas of grammar and pronunciation in which the two languages differ from each other will cause difficulties for the learner, whereas areas in which the two languages are the same will not cause problems for the learner. The difficulties caused by the differences between L1 and L2 are said to be caused by the interference of L1 with the acquisition process. A contrastive analysis of the two languages can reveal which areas can be expected to cause problems, and which areas will be benign.

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The theory has obvious merits, for instance the well-known fact that the origin of learners of an L2 can often easily be identified on the characteristics of their accent. Nevertheless, it has been shown that the acquisition of an L2 is a more complicated process than one whose workings can be adequately described and explained by merely referring to differences between the L1 and the L2.

Some scholars rejected the contrastive theory all together, arguing that the acquisition of an L2 follows the same sequence of stages no matter what the L1 and the L2 might be (cf. Krashen's theory of the natural order of acquisition (1982)). Even though the rejection of the contrastive theory is untenable because there is a wide body of evidence that supports it to some extent, several observations have proven that it cannot account for all the facts of L2 acquisition.

It has been demonstrated that differences between the languages should not be taken in a binary fashion, i.e. a linguistic feature being either different or the same in L1 and L2. Rather, degrees of similarity should be established. Bohn and Flege (1992) have for example shown that a higher degree of difference may actually facilitate the acquisition of new phonemes than a higher degree of similarity, likely because a larger difference is easier to notice than a smaller difference is. Noticing has been advocated as a general prerequisite for acquisition (Schmidt 1990).

Learners can also make mistakes in an area of grammar that is the same in the L1 and L2, for instance that speakers of Dutch L1 can violate the V2 rule when producing Danish L2 even though Dutch has the same V2 rule that Danish has (Lund 1997). Different parts of language may be predisposed to the interference of the L1 to different degrees, pronunciation being the most susceptible area.

Not only the L1 can interfere with the acquisition of a new language, but also other languages that the learner has already acquired, i.e. L2, L3, etc. can also influence L_{x+1}. On the other hand, it has also been realised that the influence of the L1 up to L_x need not be negative. For common wisdom states that the more languages one already knows, the easier it is to learn a new one. Such help from already acquired languages is called positive transfer (Odlin 1989, Ringbom 2007).

Finally yet importantly, studies have shown that even the L1 can be influenced by L2, L3, etc. (Pavlenko and Jarvis 2002). Also my own experience as a multilingual person and as a language teacher as well as a teacher of language teachers tells me to have no doubt that this theory is relevant even though it is clearly not the whole truth (Valovics (now Madsen) 1998). This view is also evidently shared by the authors of two of the textbooks which have been used in *English Grammar*, Borg (2001) and Hjulmand and Schwarz (2012), as revealed by the very titles of the books. Indeed, the findings of this project largely corroborated the theory of cross-linguistic influence.

4.2 The monitor theory

The monitor theory¹² was considered because it is one of the most debated theories in the field of second language acquisition, and because the data available to this project seemed particularly well suited for testing this theory. Krashen claims in his monitor theory that learning grammar explicitly is not only unnecessary, but also useless for the acquisition of a second language.

This is in heavy contrast to the expectation in my department. The study regulation of English Business Communication stipulates that the students develop “*Kompetencer til at overføre teoretisk grammatisk viden til praktisk sprogproduktion [Ability to transfer theoretical grammatical knowledge to practical language production]*” (Department of International Business Communication 2009-2015).

Krashen has posited a number of interrelated theories to explain the nature of second language acquisition (1982). For this project, his distinction between learning and acquisition and his monitor theory are of primary interest.¹³ Two of the papers in this project, Madsen (2014, in Section 6.1), and one in preparation (Section 6.10), were dedicated to this matter.

Krashen defined acquisition as the internalisation and automatization of the rules of the L2. It is a presumably unconscious process, which results in the ability to process the L2 rapidly. Learning is – on the other hand – defined as a conscious study of the rules of the L2. These concepts are not controversial on their own and correspond largely to the newer terms of procedural knowledge and declarative knowledge of a language, respectively (Ullman 2015). This distinction neatly formalises the common observation that it is one thing to be able to recite say the rule that English verbs receive the suffix -s in third person singular present indicative, including all the intricacies of the rule, and it is an entirely different matter to employ this rule in a conversation flawlessly.

¹² Krashen himself has variously referred to his monitor theory as monitor theory, monitor model, monitor hypothesis or just the Monitor even within the same work of his (e.g. 1981: 67). I believe that if one is to strictly adhere to the terminology of the philosophy of science, it is not warranted to call the monitor a *hypothesis* as it is not something that can be tested directly. Postulate, model or theory would be a more appropriate term. R. Ellis (2005: 9) uses *model*. However, I opt for *theory* in order to be in line with the title of the chapter.

¹³ Kim Ebensgaard Jensen (personal communication) suggested with reference to Dienhart (2004) that Krashen’s theory of affective filter could be invoked to explain why the Danish students have substantial problems with (theoretical) grammar, as grammar seems to have become demonised in the Danish educational system (cf. Jensen 2011).

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What has provoked much controversy is the monitor theory, which claims that learning cannot be transformed into acquisition. Knowledge about the L2 that has been learned can only be used as the eponymous monitor, which is a metaphor of the language learner's conscious attention to their own output. The monitor can only edit the learner's output in the L2 should the learner notice a mistake in their output and have enough time at their disposal to perform the modification prescribed by a rule that has been learned.

Even so, the monitor will never provide acquisition of the rule, and the learner will be prone to make the same mistake again and again until the rule has been acquired, which is – supposedly – an entirely different process. Acquisition is supposed to happen spontaneously if the learner is given comprehensible input (the theory of comprehensible input (Krashen 1982)) and is not hindered by psychological factors, such as traumas or inhibition (the theory of the affective filter (ibid)).

A corollary of the monitor theory is that learning grammar rules explicitly is useless with a view to acquiring a language. Of course, Krashen does not argue that studying grammar rules is useless as such. That would render much of the science of linguistics a futile spare-time activity. However, apart from satisfying one's intellectual curiosity, learning grammar rules does little good for one's acquiring an L2, i.e. it will not help one master the L2 in practical terms.

This hypothesis contradicts the way English is taught in my department, in which the students have to learn theoretical grammar, i.e. have to study grammar rules. Even in *Production of Written Texts*, which is more practice oriented than *English Grammar*, reference is constantly made to grammar rules in the hope that it will help the students acquire English. It is assumed that learning can be transformed into acquisition.

Because of this contradiction, it was an obvious choice in the project to try to investigate how our way of teaching English would hold up to the monitor theory. The fact that data were available to the project both on the informants' knowledge of theoretical grammar (i.e. what they had learned), and on their mastery of practical English skills (i.e. what they had acquired) made it possible to compare learning and acquisition, and thereby test the monitor theory.

Indeed, moderate correlation was found between the informants' extent of learning and the extent of their apparent acquisition. Informants who were better versed in grammar tended to write English with fewer mistakes, and informants less advanced in grammar tended to produce more mistakes in their texts (cf. Sections 6.1 and 6.10).

Truth be told, however, these findings cannot dismiss the monitor theory on their own. The fact that the study object of the project was the written language may mask the difference between acquisition and the use of the knowledge learned. For

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the informants had in principle ample time during the writing of their assignments to invoke their monitors in order to eliminate mistakes.

Thus, it may be that what was measured as the level of the informants' mastery of practical language skills – presumed to have been acquired – may in fact have been the working of the monitor. In this case, the study measured the effectiveness of the monitor, and not the correlation between learning and acquiring.

However, judging from the students' self-evaluation as emanating from their reflections in their portfolio exams in *Production of Written Texts* (cf. Section 3.1.3), the students did not utilise their monitors to the fullest possible extent since many of them acknowledged that they could have done considerably better had they paid more attention to writing correctly. In any case, even if the monitor theory could not be refuted beyond reasonable doubt, the results of the project did suggest that learning grammar was on average beneficial and not detrimental to the writing of English.

4.3 The accessibility hierarchy of relativization

Keenan and Comrie proposed (1977) a hierarchy across the languages of the world concerning the relativizability of nominal elements as expressed in the syntactic function of the relativizer in its relative clause. The hierarchy from the most readily relativizable syntactic position to the least relativizable one is subject – direct object – indirect object – oblique object – genitive (aka possessor) – object of comparison.

The hierarchy is implicational in that a language can allow its relativizers to assume a position lower in the hierarchy only if it also permits them to assume *all* the positions above. I.e. a language can only allow its relativizers to assume the function of say possessor if it also allows them to assume the functions of oblique object, indirect object, direct object and subject. However, it does not have to also allow the object of comparison to be relativized because that function is below the possessor in the hierarchy.

I wanted to test the accessibility hierarchy because I had noticed that the students seemed to have problems with relativizing the possessor in English, i.e. with the use of *whose*. This could not be explained by the theory of cross-linguistic influence since both Danish and English allow the relativization of the possessor. However, because the possessor is placed low in the hierarchy, I postulated the hypothesis that it might be more difficult to relativize the possessor than the functions above it. Hence, the informants might be more prone to committing mistakes when relativizing the possessor than when relativizing the other syntactic functions. Madsen

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(2015b in Section 6.6) was dedicated to investigating the accessibility hierarchy's relevance for second language acquisition.

5 Literature review

Whereas Chapter 4 expounds the theories that were tested in the project, this chapter outlines the theories which describe the project's conceptual framework. The chapter attempts to put the project into a wider perspective within the study of second or foreign language acquisition and teaching by providing an overview of the key ideas and major approaches in these interrelated fields. Considering that even textbooks of several hundred pages (e.g. Saville-Troike 2012) can only give a fragmentary impression of the field, this chapter is necessarily sketchy and focuses only on the concepts that are most relevant for the project.

The study of language acquisition is a thriving field of science. Lado's seminal work (1957) is one of the first still influential books within this field, and since the late 1960s (R. Ellis 2005: 9), much has been and continues to be written on theories, types, circumstances, prerequisites, conditions and outcomes of second language acquisition. The study of language pedagogy has been equally flourishing (Johnson 2008). Conferences and journals are dedicated to both these fields.

In the first subsection, I review the closest "relatives" of my project. The next section is dedicated to what I perceive as the classical or mainstream study of second language acquisition and teaching. I call it mainstream because the questions that the scholars working within this subfield have attempted and keep trying to answer were posed already decades ago. The last section is devoted to younger developments within second language studies, developments in which computers have played a crucial role.

5.1 The project's place in the field of language acquisition and pedagogy

Despite the richness of literature on language learning and teaching, relatively little seems to have been published about the topics of this project. A search in Google, in the Directory of Open Access Journals (<https://doaj.org>), in ResearchGate and in the catalogue of the Royal Danish Library revealed no works about the learning or teaching of *theoretical* grammar. Nor have I seen a presentation on this topic at any of the conferences I have attended (Chapter 6 contains a list of the conferences I have visited during the project).

As explicated below, much effort has been devoted to studying the usefulness of teaching/learning grammar. However, grammar in those studies is practical grammar, not the theory of grammar, which is what my students had to learn. No one seems to have studied how theoretical grammar terminology can be learnt or taught. Roche and Suñer (2016) have suggestions as to the teaching of grammatical concepts. However, they seem to focus on the practical, not on the theoretical aspects.

Falk (2011) is especially interesting because her work seems to come closest to my project. She has studied Swedish university students of English. Similarly to my discoveries, she finds that while her students are quite proficient in spoken English and fairly motivated to study, their command of written English leaves something to desire. Her focus is, though, somewhat different from the one of my project. She gives less emphasis to the study of the students' problems with (theoretical) grammar, and more emphasis to providing concrete solutions in teaching English.

In general, university students seem to be underrepresented in studies of language acquisition. When it comes to people still in the education system, pre-university pupils seem to be more popular objects of study than university students are (Andrews et al. 2006, Højslet Nygaard 2007, 2011). Frederiksen (2016) does study the English of Danish university students. However, he focuses entirely on the acquisition of lexical items. Therefore, his project and mine have little overlap although precisely for this reason, they complement each other well in an overall assessment of Danish students' acquisition of English.

As for the teaching of writing skills in English at the *tertiary* level of education, the literature offers a wide choice of textbooks and articles (Dreyfus et al. 2011, Barbul 2016). Some works are generic in that they are not directed at students with a specific mother tongue (e.g. Baker 1992, Björk and Räisänen 2003); others are specific aiming at Danish students (e.g. Albrecht 2010, Buhl 2005).

5.2 Mainstream second language studies

R. Ellis (2006: 83) formulated eight questions which have been the research questions expressly or implicitly for some fifty years by now. The questions address pedagogical issues explicitly; however, since the answers to them have been sought in the results of studying language acquisition, they are also relevant to the latter.

1. *Should we teach grammar, or should we simply create the conditions by which learners learn naturally?*
2. *What grammar should we teach?*

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3. *When should we teach grammar? Is it best to teach grammar when learners first start to learn an L2 or to wait until later when learners have already acquired some linguistic competence?*
4. *Should grammar instruction be massed (i.e., the available teaching time be concentrated into a short period) or distributed (i.e., the available teaching time spread over a longer period)?*
5. *Should grammar instruction be intensive (e.g., cover a single grammatical structure in a single lesson) or extensive (e.g., cover many grammatical structures in a single lesson)?*
6. *Is there any value in teaching explicit grammatical knowledge?*
7. *Is there a best way to teach grammar for implicit knowledge?*
8. *Should grammar be taught in separate lessons or integrated into communicative activities?*

Question 6 seems to be the cardinal question, because if the answer to it is no, then all the other questions become meaningless.¹⁴ Probably nobody denies that grammar is a part of language and therefore has to be learnt in one way or another if one wants to acquire a language. The question is how grammar can be learnt, and how – if at all – it should be taught. Hence, question 6 is the major dividing line between groups of scholars within the field.

One group of scholars, inspired by Chomsky's ideas of *Universal Grammar* and the *Language Acquisition Device* (1965), answers no to Question 6 by denying the usefulness of teaching grammar explicitly. Bickerton (1984), Krashen, and White (2015) are prominent members of this group. The basic argument is that since language acquisition is taken care of by innate processes, for which Chomsky coined the metaphor of Language Acquisition Device, teaching grammar is unnecessary (Nassaji and Fotos 2004: 127). Advocates of the direct and the audio-lingual teaching methods do not believe in the teaching of grammar explicitly, either, even though their theoretical background is behaviouristic rather than innatist.

The yes group, to which I myself subscribe, has been discussing the answers to the other questions. A common way of conceptualising the usefulness of teaching grammar explicitly is in terms of an *interface* (R. Ellis 2005: 14). The interface is a metaphor for the connection between explicit grammatical knowledge and the implicit mastery of a language (cf. Section 5.2.1), or – in other words – for the transformability of explicit knowledge into implicit knowledge. According to proponents of a *strong* interface, teaching grammar is not only useful, but downright necessary. As Häusler and Glovacki-Bernardi put it (2010: 51)

¹⁴ To me, the first part of Question 1 and Question 6 are effectively synonymous. For if there is value in teaching explicit grammatical knowledge, then grammar ought to be taught. Conversely, if there is no value in teaching grammar, then there is no point in even contemplating whether grammar should be taught or not; it should not.

Obwohl in theoretischen Auseinandersetzungen, besonders seitens der Spracherwerbsforschung, der Nutzen der Grammatikunterweisung immer wieder in Frage gestellt wird, ist Fremdsprachenunterricht ohne Grammatikvermittlung nicht vorstellbar. [Even though the usefulness of grammar teaching is continuously questioned in theoretical works, especially within the study of language acquisition, the teaching of a foreign language is inconceivable without the teaching of grammar.] (my translation)

The grammar-translation method, in effect practiced in my department as well, rests on the assumption of the existence of a strong interface. However, it seems that most scholars who believe in the usefulness of teaching grammar adopt a *weak* version of the interface (Hulstijn 1995, R. Ellis 2002, 2005, 2006), according to which only certain elements of grammar are worth being taught and/or only under certain circumstances.

Important concepts in the context of a weak interface are *noticing*, *attention* and *awareness* (Nassaji and Fotos 2004, Schmidt 2010, Crivos and Luchini 2012, Robinson et al. 2012, Aslan 2014). It is argued that much of the learning process is unconscious (Schmidt 1994, N. Ellis 2005). However, learning can be made more effective if the learners are made aware of what they are learning, if their attention is drawn to and they notice the important aspects of the subject matter. As N. Ellis (2014) expressed it, answering Question 7, teaching is most useful if it draws the learners' attention to features in the target language which are somehow not salient and are therefore not easy to notice, for example unstressed function words.

Generalisations of the concepts noticing, attention and awareness are *learnability* or *processibility* (Crivos and Luchini 2012, Pienemann 1998, 1999) and the complementary concept *teachability* (Pienemann 1984). These concepts relate to Question 3 to 5 above and encompass the idea that there may be a "best time for everything" in learning/teaching grammar. That is, there may be an order which is the most appropriate one for the learning/teaching of the elements in the grammar of a language. A corollary of this is that teaching is most effective if it presents the elements of grammar in the order in which they are easiest to learn.§

Ever since knowing grammar stopped being a virtue, scholars have sought ways to teach grammar in disguise.¹⁵ The favourite solution to this problem, the answer to Question 8, seems to be *task-based* or *communicative* teaching, in which the teaching of grammar is embedded in activities which are meaningful and useful to the learners (Nassaji and Fotos 2011, R. Ellis 2014). In this way, one attempts to

¹⁵ Admittedly, the once (and in some places still) so popular audio-lingual method in language teaching with its brainless drills of grammar exercises did not exactly increase the esteem of learning grammar.

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create a learning environment which is appealing to the learners, and in which linguistic form is immediately associable with meaning.

5.2.1 Implicit vs explicit

There are quite a number of distinctions in the literature in terms of pairs in which one member is called implicit, and the other member explicit. Thus, distinction is made between implicit and explicit knowledge, implicit and explicit learning, implicit and explicit instruction as well as implicit and explicit feedback. These terms can also elucidate the overall circumstances in which the project and its informants were placed.

Following R. Ellis et al (2009), implicit knowledge corresponds to the result of acquisition, and external knowledge corresponds to the result of learning, in Krashen's terms. The informants of the project were required to attain both implicit and explicit knowledge, as they had to possess both knowledge of theoretical grammar and practical linguistic skills if they were to pass all their exams.

Implicit learning is defined as the unconscious attainment of knowledge, whereas explicit learning takes place when the learner pays conscious attention to the learning process. Implicit learning corresponds roughly to acquisition, and explicit learning to what Krashen simply calls learning. However, whereas Krashen's distinction between the *process* of learning and acquiring is also a distinction between the *results* of these processes, the distinction between implicit and explicit learning does not refer to any possible difference between the outcomes of these processes (that distinction is made in terms of implicit and explicit knowledge).

University language education clearly favours explicit learning, as much effort is put into making the students conscious about their learning process. However, it is also expected that their explicit learning will bear out not only explicit knowledge, but also implicit knowledge. The heavy focus on teaching theoretical grammar practised in my department presumes that explicit learning can result in implicit knowledge.

Implicit instruction is defined as not attempting to draw the learners' attention to what is being taught. Rather, it attempts to furnish the learners with opportunities to "pick up" whatever is being taught, themselves. Implicit instruction favours, though does not preclude or prohibit explicit learning. The learners can freely choose what they pay (conscious) attention to.

Explicit instruction seeks to raise the learners' metalinguistic awareness of and attention to what is being taught, and it therefore tends to involve the teaching of rules. Explicit instruction presupposes the existence of a "structural syllabus" which the learners' are intended to attain (R. Ellis et al. 2009: 16).

University language courses tend to be highly explicit. As for the two courses involved in this project, *English Grammar* was clearly explicit instruction, but also *Production of Written Texts* was heavily explicit, as frequent references were made to rules when the students' mistakes were explained, and the students were afforded rather little amount of exemplars of the English language from which they could draw knowledge implicitly.

Again, it should be noted that even though explicit instruction favours explicit learning and the attainment of explicit knowledge, it does not preclude and is not meant to preclude internal learning and the attainment of internal knowledge. This is the assumption underlying the providing of explicit instruction to and expecting implicit knowledge from the students. In fact, even though some of my articles addressed the monitor theory (Sections 6.1 and 6.10), they effectively investigated the issue of whether and if so, to what extent explicit instruction can result in implicit knowledge.

Lyster and Ranta (1997), and Panova and Lyster (2002) distinguish between implicit and explicit feedback types, though not as a dichotomy, but as a scale with said endpoints. Implicit feedback means that the feedback provider merely suggests their opinion about the correctness of the object of the feedback. Explicit feedback means that the feedback provider clearly asserts their opinion. In addition, feedback can also be negative or positive, Negative feedback focuses on incorrect usage, whereas positive feedback on the correctness (or correct parts) of the learner's production.

The feedback that was used in the project as major data source was negative and strongly explicit. It was negative since it was based on error analysis. It was strongly explicit because it clearly indicated to its recipients what and where was wrong. However, since the feedback did not state what the correct expression would be, but only categorised the deviation metalinguistically, it was not completely explicit.

Because of its nature, this feedback type fitted well into the explicit teaching practised in *English Grammar* and *Production of Written Texts*. Furthermore, its metalinguistic character required that the students have thorough explicit knowledge to be able to make use of it. This may have been a disadvantage for less explicitly minded students, as alluded to in Section 8.6.

5.3 Computerised research

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Naturally, ever since computers became powerful enough, they have been employed in the service of the study of language acquisition and the teaching of languages. *Connectionists* build models in software that attempt to simulate language acquisition on the level of neural connections – hence the name connectionism (Lau 1992, Kartalopoulos 1996, Baldi and Brunak 1998, Valovics (now Madsen) 1999a).

Although it is, to my knowledge, not customary to assign pedagogical relevance to connectionism, it was one of the sources of inspiration to me to try to build a model with predictive power. For the advantage of artificial neural networks is that they can (at least in theory) respond to unforeseen scenarios reasonably without their creator having to cater for every contingency in advance. A model with predictive power was the explicit topic of Madsen 2015a (Section 6.4), and the idea “lurked” in the background elsewhere too during the project.

Two other computer-aided approaches have potentially considerable pedagogical uses. One of these, *corpus linguistics*, is also a fundamental part of this project even though it was not used pedagogically here. Gilquin et al. 2007 argue for the necessity of using learner corpora to improve the pedagogical potential of studying language acquisition. Flowerdew 2009 presents possible applications of corpora in the teaching of various linguistic features, for instance the usage of tenses. Using corpora can add an inductive flavour to teaching, effectively making the students their own teachers.

An interesting paper is that of Vernon’s (2000) with regard to the use of grammar checker software in language teaching. As a practising teacher and developer of the Danish grammar checker, I can but relate to his proclamation (ibid: 331):

Both our students and grammar checkers have trouble with grammar; the unreliability of grammar checkers, given their ubiquity, becomes a reason to address them in the classroom.

His point is still relevant, as grammar checker software is still rather unreliable. Pedersen (2012) claims that a faulty grammar checker might even perpetuate typical mistakes that natives make. I observed a similar unfortunate possibility for translation software as well (cf. Section 6.3).

However, instead of dismissing such tools as impractical, Vernon argues for the tutored use of them. With ample caution, they can be useful aids. My superficial impression is that students tend to accept the suggestion of e.g. Google Translate without much second thought, whereas they seem to ignore the advice of Word’s grammar checker. Thus, there is room for enlightening the students in this respect.

I have too often heard the argument that today’s young people surely know their way with computers and suchlike and better than their elders do, simply because they were born into and have grown up in a society in which computerised appliances have been in widespread use since their birth. However, just as no one

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would give a person a driver's license simply because that person has grown up in a motorised society, just as little is it justified to expect the students to be able to utilise linguistic tools without having been taught their use and limitations.

6 Knowledge dissemination in the course of the project

This chapter describes what has been presented of this project publicly. Emphasis is given to showing how the individual steps in the development of the project hung together, what motivated them, and what considerations were made to improve the work in the project along the way. The presentations are described in the order of their conception, not in the order of their presentation or publication, because this better shows the evolution of the project.

Short presentations of my project in various courses for PhD students are not included here, only presentations that either led to a published article or otherwise represent a major stage in the project. Neither are included my lectures which I gave on English grammar in Maribor, nor my lectures for teachers of Danish, which incorporated some relevant findings of my PhD project despite its focus being on English and its acquisition.

Table 6-1 summarises the major steps in the project, which are elaborated in the subsections below. Blue background indicates steps leading to published or forthcoming articles, and green hues indicate presentations without (as yet) ensuing publication. Internal seminars were organised by my own department, and most participants came from here.

Table 6-1: The major stages of the project

	Title	Type of work	Date of (first) disclosure
1	Correlation between theoretical knowledge of grammar and performance in the production of written texts	Presentation at internal seminar, published article (Appendix A)	December 2012
2	Danish students' difficulties with English	Presentation at national conference	March 2014
3	Challenges word order poses	Presentation at internal seminar	June 2014

Knowledge dissemination in the course of the project

	Title	Type of work	Date of (first) disclosure
4	Statistical model of learning descriptive grammar	Presentation at international conference, published article (Appendix B)	August 2014
5	Students' self-assessment and self-awareness in language learning	Presentation at international conference, published article (Appendix C)	November 2014
6	The accessibility hierarchy of relativization in second language acquisition	Presentation at international conference, published article (Appendix D)	May 2015
7	Challenges does word order pose	Presentation at national conference	June 2015
8	L2 Influence on L1 with Respect to Constituent Order in Translations from English into Danish	Presentation at international conference, published article (Appendix E)	September 2015
9	Relative clauses in second language acquisition	Presentation at international conference, article forthcoming (Appendix F)	October 2015
10	Learning vs Acquisition – How much does learning grammar help?	Presentation at international conference, article planned	October 2016

As can be seen, three major themes have been of recurring nature in the project: word-order phenomena (3, 7 and 8), relative clauses (6 and 9), and pedagogical considerations (1, 2, 4, 5 and 10). Works 1 and 10 sought to test the monitor theory (see Section 4.2). Works 3, 7, 8 and 9 made explicit reference to the theory of cross-linguistic influence (see Section 4.1), and 6 to the accessibility hierarchy of relativization. Works 4 and 8 attempted to uncover statistics that could help the early identification of students who were likely to face excessive challenges with the acquisition of English or theoretical grammar. A further work, which is in its preparatory stage,

will consider the theory of cross-linguistic influence across different L1's, namely one that will compare Danish, Slovene and Serbian informants with respect to the use of relative pronouns (cf. Section 8.3).

6.1 Correlation between theoretical knowledge of grammar and performance in the production of written texts (published article)

Evolving out of the presentation of my very first statistical findings at an internal seminar in December 2012, this article (Madsen 2014, Appendix A) served several purposes. First of all, it was the first systematic overview of what mistakes the students tended to make in the course *Production of Written Texts*. It was a necessary overview – the first of its kind in my department to my knowledge – in order to be able to see in what direction the project could and should move. In fact, originally the project was only intended to investigate the problems that Danish students might have with stylistic issues in the production of English texts (Biber and Conrad 2009).

However, the statistics computed for this article indicated that it would hardly be justified to dedicate a whole PhD project to the investigation of stylistic mistakes alone. The informants surveyed in the article, the students of the academic year 2012-2013, did of course have stylistic problems; however, these problems were not as dominant as one may have thought. Hence, it was decided to widen the scope of this project to include every possible challenge with English grammar that Danish students might face. Thus, the title of the project originates from the findings in this article.

Second, the article was my first attempt to correlate the students' academic standing with their educational background. This was of interest because the study program English Business Communication received students from various types of high schools, and it was interesting to know whether there was any difference between groups of students that might have to do with their educational background. Such a difference was found, in the favour of students who came from business school; however, the difference was not statistically significant.

Last, the article was my first attempt at testing the monitor theory (see Section 4.2). The theory was tested by correlating the students' level of knowledge of theoretical grammar with their level of practical command of written English. The former was assessed in terms of the students' performance at the grammar exam, and

the latter was measured in terms of the linguistic correctness of their home assignments in *Production of Written Texts*.

A correlation of weak to medium strength was found between these two correlates, which meant that students who demonstrated a more extensive knowledge of theoretical grammar also tended to have a stronger practical command of English, and vice versa, students weak in either of these two subjects tended to be weak in the other one. It was therefore concluded that learning theoretical grammar is of some use to acquiring written English although it could not be proven that knowing theoretical grammar actually caused the acquisition of practical linguistic skills.

6.2 Danish students' difficulties with English (presentation at national conference)

In March 2014, I was invited to present my findings thitherto at a conference held in Aalborg for teachers who teach English in courses for people who seek admittance to a university in Denmark within study programs of engineering.¹⁶ My presentation contained one of the points that are described in Section 6.1, and which had not yet been published at that time. This was the major challenges for Danish students found in my initial study.

My findings made resonance with the experience of my audience. Unfortunately, however, I did not succeed in persuading my audience to share their data, the texts that their students had written or would write, with me. Consequently, I do not know exactly whether, and if so, how the two groups of students compare with one another.

I also presented my preliminary findings on the attitude of the students towards the English language and learning it, and on the students' self-assessment. I had made a survey to this end with the students in 2013-2014. I did not write the presentation up in an article because already at the time of the presentation, I started planning an upgraded version of the survey of student attitude and self-assessment, which was then published as Madsen (2016), see Section 6.5.

¹⁶ These courses are called collectively *Adgangskursus* (university preparation courses) and are offered at several educational institutions. There does not seem to be an official description of the program in English, which is probably because the program is meant only for Danish-speaking students. www.ak.au.dk and <https://www.retsinformation.dk/pdfPrint.aspx?id=179850> provide information in Danish.

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The survey had to be upgraded because the items investigated were not probed thoroughly enough; they were all single scaled, not summated scaled (Spector 1992). In addition, no correlation analysis between the items surveyed was done. Nevertheless, Table 6-2 and Table 6-3 show what I presented at the conference. The items presented in the tables were measured on a semantic rating scale on which 6 represented the most positive, and 1 the most negative response. All questions were answered by 42 informants.

Table 6-2: Students' self-assessment

Survey Items	Scores						Mean
	from least to most advanced						
	1	2	3	4	5	6	
Authenticity of pronunciation	0	3	11	18	8	2	3.88
Level of grammatical correctness	0	4	16	19	3	0	3.50
Size of vocabulary	0	1	14	18	8	1	3.86

Table 6-3: Students' assessment of the importance of various linguistic and pedagogical items

Survey Items	Scores						Mean
	from least to most important						
	1	2	3	4	5	6	
Importance of learning a foreign/second language	0	4	9	11	9	9	4.24
Importance of correct pronunciation	1	0	4	11	14	12	4.74
Importance of correct grammar in the spoken language	0	0	1	6	18	17	5.21
Importance of correct grammar in the written language	0	0	0	12	30	0	4.71
Importance of having a sizeable vocabulary	0	0	0	1	25	16	5.36
Importance of knowing grammar theory	0	2	2	11	14	13	4.81

As can be seen, the informants were rather cautious when evaluating their own mastery of English. On the other hand, they clearly recognised the importance of the surveyed items. Two things emerged as surprising. One was that the informants attached more importance to correct grammar when speaking English than when writing English. It was surprising because the line of study they had chosen focused so much on the written language. I do not know why this is so.

The other surprising finding was the low score of the importance of learning a foreign language. It was surprising because of the very fact that the informants had chosen to study a foreign language. One explanation for this relatively low score may simply be that the informants thought that the question concerned a language other than English, i.e. a second foreign language. If so, the low score underpins the continuing claim that fewer and fewer Danes master two or more foreign languages (DEA 2010, Information 2012, and Andersen and Holten-Andersen 2017).

Another explanation, which emerged in a discussion with colleagues, was that a sizeable group of students might have chosen to study English not because of genuine interest, but because they thought that it might be easy for them having been taught English in school for at least nine years. This hypothesis has not yet been tested by me directly although one of the purposes of Madsen 2016 (Section 6.5) was related, namely to assess how well prepared and motivated the students were when entering the university.

The findings of this presentation concerning a possible lack of motivation were used by me as argument for reinstating the fine-grading of the grammar exam, which had been suspended for the academic years 2012-2013 and 2013-2014, as mentioned in Section 3.1.1.

6.3 Challenges word order poses (presentation at internal seminar)

In June 2014, an internal seminar was held with the participation of Professor Scott Jarvis from Ohio State University. There I made a presentation on the difficulties that Danish students tended to have with English syntax. Syntactic difficulties were chosen as topic for two reasons. One was practical: I wanted to present a different topic from the ones that I was already working on, relativization (Section 6.6) and attitude (Sections 6.2 and 6.5).

The other reason was that I had recently been confronted in my students' home assignments by some syntactic deviations which I had not expected at university level, and I therefore wanted to investigate the matter closer. This was my first at-

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tempt at quantifying how much influence Danish might exert on the students' use of English. Hence, the presentation made explicit reference to the theory of cross-linguistic influence.

The presentation was based on an analysis of the texts of the students of 2013-2014 in *Production of Written Texts*. Free compositions, summaries and translations from Danish into English were analysed (see Section 3.1.3 for details on the texts types). All together 275 texts worth 76,864 words were analysed. Mistakes of syntactic nature, i.e. erroneous placement of clause or phrase constituents, had already been detected and tagged during the routine error analysis of the students' home assignments. For the presentation, all these mistakes were re-visited and re-analysed into subtypes, which were quantified separately (Saldaña 2013).

It was determined that syntactic mistakes constituted 1.82% of all mistakes detected in the informants' texts. Most of the syntactic mistakes were found in the translations (66%), fewest in the summaries (11%), free compositions coming in-between (23%). It is probably no surprise that the majority of such mistakes were detected in translations, in which Danish must be able to exert the strongest influence as it is directly involved in the production of the English text. Likewise, it makes good sense that summaries are least prone to containing mistakes caused by cross-linguistic influence since the students can rely on the English original when producing the summary.

I discovered that approximately 76% of the mistakes could be explained by reference to the differences between English and Danish syntax. Compared to what Mitchell and Myles report (1998: 30) as typical findings of around one-third of the errors being attributable to L1 influence, 76% is a rather high percentage. I hypothesize that because Danish and English syntaxes are so similar, Danes might be little aware of the subtle differences between the languages that do exist, and therefore have a stronger tendency to transfer Danish structures into English.

The most abundant type of deviations from standard English syntax, making up 43% of all syntactic mistakes, was the transfer of the special Danish syntax in subordinate clauses into English subordinate clauses (Togebly 2003). The second most plentiful type of deviations was the use of V2 order in English where it was not warranted, making up 14% of the syntactic mistakes (Huddleston and Pullum 2002).¹⁷ One third of these mistakes also involved the use of *do*-support, which was also incorrect in the given constructions. The excessive use of *do*-support by Danish students is a possible candidate for future study (see Section 8.4).

¹⁷ Use of V2 order in cases in which it might be considered stylistically odd, yet acceptable, were not counted as mistakes.

The possible influence of Google Translate was also investigated as the translation by Google Translate of one of the texts that the informants had to translate was analysed. It was found that two of the frequently detected types of mistakes were also committed by Google Translate, which may have reinforced the negative influence of the informants' L1 on their production of English. It is suspected that students tend to rely on Google Translate when making their translation assignments.

The remaining 24% of syntactic mistakes would also have been incorrect in Danish and are hence inexplicable by reference to the influence of Danish. Some of these might be instances of the overgeneralisation of English syntactic rules; others may simply be the result of a momentary lapse of attention.

I also realised that the teaching of *Production of Written Texts* should not restrict itself to the teaching of purely linguistic phenomena, but also to cultural differences that have syntactic reflexes. For instance, English and Danish differ from each other in the writing of addresses: street – house number in Danish, vice versa in English.

This presentation was not written up into an article immediately. Instead, two other analyses of syntactic deviations with somewhat different angles were made later, one of which was published eventually (see Sections 6.7 and 6.8).

6.4 Statistical model of learning descriptive grammar (published article)

One source of inspiration to this article, Madsen 2015a in Appendix B, was a course called Language and Reading at the University of Southern Denmark, in which I participated in April 2014. Although the topic of the course was not directly relevant to this project because it was about the acquisition of reading skills by dyslexic children, my participation in it proved to be fruitful. There, Professor Carsten Elbro from the University of Copenhagen presented statistical technics to assess what factors influenced the acquisition of reading skills, and technics to predict which children were at risk of developing dyslexia so that they could be better helped early on in their learning process.

The article was my attempt at adapting these technics to the assessment of the learning of theoretical grammar. I chose theoretical grammar as the object of investigation because it was one of the subjects that the students had to learn, and it was one of the subjects – if not *the* subject – which was notoriously most feared by the students. It was also the subject of which the students were likely to possess the least knowledge prior to entering the university (cf. Section 3.2.2.1).

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The purpose of the article was to shed light on which topics within theoretical grammar were more basic than others, and the knowledge of which topic(s) could serve as the best predictor of overall success in learning theoretical grammar. More basic in this context meant that a particular topic of theoretical grammar would have to be learned before another one could be learnt; i.e. the learning of certain topics would depend on the prior learning of other – more basic or more essential – topics.

Knowing which parts of grammar theory were more basic would reveal which parts should be taught first and more thoroughly during the course English Grammar. Thus, the teaching of grammar theory might be made more effective. This was of great importance given that the course consisted of rather few lessons (see Section 3.1.1). Knowing which topics of grammar theory could serve as the best predictor of overall success would make it possible to detect students early who might be at risk of failing the grammar exam in *English Grammar* and hence possibly help them avoid this distressing fate. Hence, the purpose of this article was largely pedagogical.

The paper was presented at the 4th Central European Conference in Linguistics for Postgraduate Students at the Institute of English Studies, John Paul II Catholic University of Lublin, Poland in August 2014 and published later on in the conference proceedings. In order to determine which parts of theoretical grammar were more basic, an implicational equation was invented, which could reveal the interdependence of knowing the various topics within theoretical grammar. The best predictor of overall success was determined by a regression analysis. Students from 2009-2010 through 2013-2014 served as informants.

Although the findings were somewhat varied, the article largely confirmed the assumption seemingly present in most grammar books, e.g. in the textbook of *English Grammar* (Hjulmand & Schwartz 2012), that it is essential to know parts of speech and clause constituents. Knowledge of these two phenomena is also a good predictor of overall success in learning theoretical grammar. The results of this work were also used as argument to modify the teaching and evaluation of theoretical grammar: More emphasis was given to teaching morphology (i.e. knowledge of parts of speech) in *English Grammar*, and the grammar exam was modified so that it evaluated the students' knowledge within the various topics more evenly, as mentioned in Section 3.1.2.

6.5 Students' self-assessment and self-awareness in language learning (published article)

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By the start of the academic year of 2014-2015, it had become clear that however useful and necessary a linguistic analysis of students' acquisition of English might be, it could not reveal every relevant aspect of their process of acquisition. One of the things that had been bothering me as a teacher was the seeming lack of interest for grammar on the students' part, accompanied by their not particularly impressive results at the exams. The emerging results of the analyses of the students' texts also revealed that several students did not only have difficulties with grasping the theory of grammar, but also had problems with writing English, making quite a few trivial mistakes which one should think would have been mastered by the time of starting at university, for example mistakes with subject-verb agreement.

Therefore, I endeavoured to uncover how well prepared and determined the students were to study business communication in English. The freshmen of 2014 were selected as informants. I presented the study at the 2nd international conference of Linguistics Beyond and Within at the Institute of English Studies, John Paul II Catholic University of Lublin, Poland in November 2014 and published later in the conference proceedings.

I posited three hypotheses as possible explanation of the students' trouble with grammar: The students might enter the university unprepared, they might lack motivation, and they might overestimate their own skills and abilities. In order to measure the students' motivation and self-evaluation, I devised a summated-rating-scale survey loosely based on Gardner's Attitude and Motivation Test Battery (1985).

The pre-test part of the survey was administered on the students' first day at the university to measure their initial level of motivation and self-evaluation of their linguistic skills. The post-test part of the survey was performed just before the autumn semester of 2014 ended. It was to measure whether the students' motivation had changed during the semester, and whether their self-evaluation of their skills had become more precise based on the feedback that they had received during the semester.

The data gained from the above-mentioned psychometric surveys were correlated with the informants' actual academic standing as measured by way of the error analysis of their home assignments in *Production of Written Texts*, their score in the grammar exam and their score in the extracurricular grammar test which they were given on their first day at the university.

The pre-test was correlated with the first home assignment in *Production of Written Texts* and the first-day test measuring the informants' knowledge of theoretical grammar at the beginning of their study. The post-test was correlated with the other home assignments in *Production of Written Texts* and the score of the grammar exam.

I found that the students' initial level of knowledge of theoretical grammar was indeed rather low. However, they were not unmotivated. The students proved to be largely unaware or unconscious of their own abilities, but they did not tend to overestimate their skills be these practical or theoretical. Therefore, it was concluded that the ideal approach would be to better coordinate the requirements and expectations between universities and in high schools.

6.6 The accessibility hierarchy of relativization in second language acquisition (published article)

The work on this article was triggered in May 2014, when I attended the 4th conference on Foreign Language Teaching and Applied Linguistics in Sarajevo, Bosnia and Herzegovina. Karakaya (2014) presented her work on the accessibility hierarchy in relativization (Keenan and Comrie 1977) in connection with second language learners. Since I had already had a long-standing interest in relative clauses and language typology, I was easily inspired to do a similar work myself (Valovics (now Madsen) 1999b, 2003, Madsen 2005). My version was presented at the 5th FLTAL conference in Sarajevo in May 2015 and published later (Madsen 2015b, Appendix D).

The focus of the article was of course how Danish students fared in the use of English relativizers, and how much of any deviations from standard English usage could be explained with reference to the accessibility hierarchy. However, I also studied how well the students managed with relative clauses in Danish. This was necessary in order to see whether the deviations found could really be attributed to the accessibility hierarchy or to some other factors, not the least the influence of Danish.

Apart from the obvious goal of investigating the accessibility hierarchy, this article was my second attempt at testing the theory of cross-linguistic influence. Since a contrastive analysis of English and Danish reveals major differences with respect to the use of relativizers, it was expected that Danes would have problems with the English relativizers.

The article combined the analysis of the corpus of student texts with respect to relativizer use with questionnaires probing the students' abilities to produce relative clauses and to select the appropriate relativizer. In the corpus-based analysis, all occurrences of relativizers were considered up to the year 2014, not only the erroneous instances. For the questionnaire surveys, the students of 2014-2015 were recruited as informants.

The questionnaires can be found in Appendix H. They were referenced in, but not published with the article. The items in the questionnaire were presented in a random order to the informants. The three questionnaires were administered on three different occasions in order to alleviate the time and workload pressure on the informants. This pressure constraint also explains the fact that relatively few questionnaire items were used. However, the fair number of 54 informants balances out this shortcoming. The results of the surveys were fed back to the informants so that the surveys could also serve a pedagogical purpose.

The article dismissed the relevance of the accessibility hierarchy. On the other hand, a similar ambivalence towards the relativization of the possessor as the one referred to by R. Ellis (1997: 64) was found. The article also uncovered a clear cross-linguistic influence by Danish on English regarding the use of relativizers. However, since this part of the article was only secondary in importance, this theme was revisited in a later work (Madsen forthcoming in Section 6.9).

6.7 Challenges does word order pose (Presentation at national conference)

This presentation, given at a conference for PhD students at the University of Southern Denmark in Odense in June 2015, was a continuation of the work described in Section 6.3. The title was changed in order to allude to the new in this presentation, namely an investigation of the influence that the English L2 exerts on the informants' Danish L1, even though it is a Danishism in English.

It had been noticed earlier in the translations of the Danish students from English into Danish that they sometimes made syntactic mistakes in their mother tongue. Therefore, I wanted to see whether there were any discernible patterns in the deviations from standard Danish. The method was the same as in the previous study. The syntactic mistakes that had been detected in the translations into Danish were re-analysed and classified into subtypes, on which a frequency analysis was performed.

The most frequent deviation detected was the not observing of the special syntax of Danish subordinate clauses, making up about 37% of all syntactic deviations. The second most recurrent deviation was the neglecting of the fact that Danish is an obligatorily V2 language, comprising about 29% of the deviations. Again, it surfaced that also cultural awareness should be included in *Production of Written Texts* because quite a few students confused the British and American ways of writing dates.

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As for the violations in subordinate clauses, it was advanced by the audience that it was not necessarily an influence from English, but rather (at least partly) an internal development in Danish, as such deviations were also observed in non-translated Danish, though primarily in informal language. On the other hand, the non-observance of the V2 constituent order is more clearly an English influence. If anything, modern Danish tends to overuse the V2 order, extending it into subordinate clauses, especially in indirect questions, for which a different constituent order is applicable (Togebly 2003).

Unfortunately, it was not possible to obtain non-translated Danish texts from the group of informants who participated in this study. Thus, there is no basis for comparison, and it is not possible to know how these informants behave in writing Danish. This presentation was not written up immediately after this conference. Instead, an upgraded version was presented later and submitted for publication elsewhere; see below.

6.8 L2 Influence on L1 with Respect to Constituent Order in Translations from English into Danish (published article)

This article is an upgraded version of the presentation described in Section 6.7. It focused entirely on the possible influence of English on Danish and was presented at the 5th Central European Conference in Linguistics for Postgraduate Students at Palacký University, Olomouc, Czech Republic in September 2015 and published in its proceedings.

Several elements made up the upgrade in this work. More translations were analysed by including the translations of the newest freshmen in the department. The classification of syntactic mistakes was refined, and the committing of syntactic mistakes in Danish was correlated with other linguistic metrics.

The presentation also dealt with the possible influence of English on the use of possessive and relative pronouns in Danish, but these topics were dropped from the final article. As for the possessive pronouns, no discernible influence of English was found. As for the relative pronouns, the findings were inconclusive. More data were needed; however, it was not possible to acquire and analyse the data required on time.

The larger number of translations analysed confirmed the finding earlier (Section 6.7) that the most frequent deviations are the non-use of the special clause-constituent order in subordinate clauses and the negligence of the V2 rule. The cor-

relation analysis indicated that informants who committed syntactic mistakes in Danish consistently performed lower in all the metrics that were considered than informants who did not have syntactic mistakes. In many cases, the correlations were computed statistically significant. Hence, it could be concluded that making syntactic mistakes in translating from English into Danish was a very good predictor of overall success in learning both theoretical grammar and practical skills of English.

6.9 Relative clauses in second language acquisition (article forthcoming)

This was a continuation of the work done in Madsen 2015b (Section 6.6). Having dismissed the relevance of the accessibility hierarchy there, I turned to the theory of cross-linguistic influence in connection with relativization. The article was presented at the 5th International Conference of the English Department, Faculty of Philology, University of Belgrade, Serbia (ELLSTAT) in October 2015 and was accepted for publishing.

Just as the paper on the accessibility hierarchy, this one too drew on both a corpus-based analysis and questionnaire surveys. The questionnaires were based on the gap-filling questionnaires used for the previous paper, but modified and administered to a new group of informants. Instead of the clause-combining questionnaire, I used a multiple-choice questionnaire because I wanted to test how inclined the informants were to choose Danishisms when explicitly given the choice. This article too could corroborate the theory of cross-linguistic influence convincingly and uncovered important points for the teaching of relativization.

This study was dedicated to Danish informants. The same questionnaires with only minor modifications were also given to Slovene and Serbian informants, including the possible selection of Danishisms in the multiple-choice items. There was no provision to test possible Slovenisms and Serbianisms in these questionnaires. The responses of the Slovene and Serbian informants will be used in a later paper aimed at a comparison of the different informant groups' with respect to cross-linguistic influence (Jarvis 2000).

Slovene and Serbian can serve as objects of comparison with Danish within the realm of relativization because they also lack the animacy distinction between *who* and *which*, which Danish lacks. Serbian and to some extent Slovene do have agreement between the relativizer and the antecedent; however, that agreement is in grammatical gender and number, not in animacy. Moreover, the fact that the most

frequently used relativizer in Slovene, *ki*, lacks case distinction as well (that is, a difference similar to the one between *who* and *whom*) makes it even more similar to and comparable with Danish, whose relativizers also lack case declension.

6.10 Learning vs Acquisition – How much does learning grammar help?

This presentation, given at the 4th international conference of Linguistics Beyond and Within at the Institute of English Studies, John Paul II Catholic University of Lublin, Poland in October 2016, was a renewed attempt at investigating matters in connection with the monitor theory and the distinction between learning and acquisition. It was an upgraded version of my first article, outlined in section 6.1. Since this paper had not been submitted for review at the time of the writing of this thesis, it is presented here in more detail than the other papers.

This paper followed a methodology similar to the one in my first attempt, a correlation analysis. However, this study included more informants and more data types. This paper considered the students of the academic years 2014-2015 and 2015-2016, altogether 81 informants, 42% more than in the first article. The study also considered the results of the so-called survey 0, whose purpose was to measure the students' initial knowledge of English grammar (Section 3.2.2.1). This survey had not yet been available for the first article.

Secondly, the presentation attempted to consider the informants' development as well. This addressed a shortcoming of the first article, which correlated only data that indicated the informants' academic level at a given point of time. Finally, the informants were divided into five subgroups according to their academic standing. This was done in order to gain a more detailed picture of which group of students might gain most from learning theoretical grammar. Unfortunately, the division of the informants into subgroups yielded results that I have not been able to interpret yet and therefore have to re-evaluate. Three hypotheses were proposed and tested:

1. Students who are better at theoretical grammar are better, i.e. more precise, at writing English than those who are less well versed in theoretical grammar. (This basic hypothesis was also entertained in the first article.)

1b. The correlation is stronger in the case of translations than in the case of free compositions. (This refinement of the hypothesis above was added because it was assumed that translation from Danish into English would be a more demanding task than “just” writing in English directly. This assumption was based on earlier findings that the students tended to make considerably more

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mistakes in translations, even from English into Danish, than in free compositions and summaries (see Table 3-6).

2. Students who are better at theoretical grammar will have improved their writing skills more than those who are less well versed in theoretical grammar. (This hypothesis represents the idea that I also wanted take the informants' development into account. This assumption was not based on any particular finding prior to the paper, but was merely a formulation of what is secretly hoped by teachers, including myself, who teach and advocate the teaching of theoretical grammar.)

Hypotheses 1 and 1b were tested by correlating various precision metrics. For survey 0, the combined score of its morphological and its syntactical analysis part served as its precision metric. For the grammar exam, its overall score served as its precision metric. For the texts from *Production of Written Texts*, the frequency of grammatical mistakes and the frequency of all mistakes combined served as their precision metrics.

The precision metric of survey 0 was correlated with the precision metric of the free composition and of the translation from Danish into English in the autumn semester. The precision metric of the grammar exam was correlated with the precision metric of the free composition, translation from Danish into English and the reflection in the spring term. Table 6-4 below shows the correlation coefficients.

Table 6-4: Correlation between survey 0 and the grammar exam as well as various texts

Correlates	Grammatical mistakes	All mistakes
Survey 0 & 1 st free composition	0.104	0.340
Survey 0 & 1 st translation from Danish into English	0.324	0.275
Grammar exam & 2 nd free composition	0.245	0.371
Grammar exam & 2 nd translation from Danish into English	0.269	0.350
Grammar exam & 2 nd reflection	0.161	0.272

Even though the correlation coefficients are not particularly impressive, they do corroborate hypothesis 1. Hypothesis 1b seems only partially corroborated since the correlation is only stronger in the case of the translations with respect to grammati-

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cal mistakes, but is actually weaker when the correlation is done with all mistakes combined.

Judging from Table 6-4 above, the chances of hypothesis 2 to be corroborated seem bleak. The correlation coefficient of the reflection in the spring semester, which was the last text written by the freshmen as freshmen, does not seem stronger than the coefficient of the free composition in the autumn semester, which was the freshmen's first text written at the university. This does not suggest an improvement at all. However, hypothesis 2 was also tested by other means.

The correlation between the performance at the grammar exam and the improvement in writing skills was calculated. The improvement in writing skills was calculated as the difference in mistakes per 100 words between the reflection in the second semester and the free composition in the first semester. The correlation coefficients are 0.070 (grammatical mistakes) and -0.002 (all mistakes), which clearly falsifies hypothesis 2.

7 Conclusion

The following subsections summarise the results of the project with respect to the individual research questions posed in the introduction. The chapter concludes with some thoughts on the pedagogical implications of the findings of this project.

7.1 What are the major difficulties of Danish students in writing English?

As Table 3-7 suggests, the crucifying part of writing in English is the comma, being the source of 20% of all mistakes. Orthography accounts for more than a third of all mistakes. The second most frequent error macro type is semantic mistakes, which all together furnish one-third of all deviant expressions. The three most widespread types of semantic mistakes, wrong choice of expression, translation mistakes and preposition mistakes, encompass 23.8% of all mistakes, almost as much as all grammatical mistakes together (26.9%).

These results were not anticipated. The expressed expectation of the project was that grammar would be the major source of problems; however, it supplies “only” about one quarter of the mistakes. Nevertheless, it is noteworthy that agreement mistakes, the most frequent grammatical error type, amount to about 5%. It is usually considered a trivial and elementary part of grammar which should long have been mastered by the time one enters university, especially in written English. Not to mention, the grammar checker of Word can catch a fair number of agreement mistakes, which seems to go unnoticed by the students. In this light, 5% is a rather staggering figure.

In hindsight, having devoted substantial resources (two unpublished and three published papers) to a thorough investigation of the students’ problems with the use of relativizers and syntax may not seem justified. These error types did not even make it to the top ten of error types. Syntactic deviations constitute 2.343% (#15) of all mistakes detected in the English texts, and deviations in the use of relativizers mere 0.686% (#23). However, be it said to my defence that mistakes of these types somehow seem more salient, more obviously Danish than other error types. Indeed, up to three quarters of these mistakes could be explained by reference to the differences between Danish and English.

Conclusion

That comma is a troublesome character has been suspected; nevertheless, the massive scale of the misery it causes has come as a shock. However, on second thought, it is not as astonishing as it might seem. It has been known for a long time that Danes have tremendous problems with the comma in writing Danish, thus it is hardly a surprise that they do not do any better when writing in English.¹⁸

However, what was not expected at all is the prominence of semantic mistakes. It suggests that the students may have serious difficulties with the vocabulary they are required to know at university. If it is so, it may be the most severe hurdle they have to pass if they are to succeed in their studies.

7.2 What are the major difficulties of Danish students in learning theoretical grammar?

Judging from Table 3-4, there are some clear candidates for being the major challenges within theoretical grammar. The topics clause constituents, subordinate clause types and the morphological analyses consistently remained below the overall average scores, often by a large margin, often falling below the limit of passing (0.6). These results are cause for concern.

Clause constituents are one of the very few grammatical topics that are taught already in primary and secondary schools (see Section 3.2.2.1). Therefore, it is worrying that this topic seems to defy learning. The situation is exacerbated by the possibility that knowing clause constituents may be a prerequisite for a successful mastery of theoretical grammar (Madsen 2015a in Section 6.4). Even if one disregards theoretical grammar, whose importance for language acquisition may be disputed, knowing clause constitutes is also essential for mastering such a basic grammatical concept as verb complementization, which has *lexical* reflexes as well. This deficiency – unfortunately – correlates well with the observation that the students seem to have substantial problems with English vocabulary, as noted in Section 7.1.

The other notorious grammar topic, subordinate clause types, also echoes the observation of the students' possibly inadequate understanding of English. For the

¹⁸ Comma contributes about 16% of the mistakes in translations into Danish. It scores such a relatively "low" figure only because it is rivalled by compounding mistakes (13.6%), which is another well-known challenge for Danes writing Danish. Compounding mistakes are not an issue in writing English, embodying only 1.3% of all the mistakes. Were they not an issue in Danish, either, comma-related mistakes would easily surpass 20% in translations into Danish, too.

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determination of the type of a subordinate clause is heavily dependent upon understanding the clause since the grammatical markers, conjunctions and non-finite verb types, are often ambiguous. Considering the fact that the students had to choose from only three or four possible clause types, the rather low scores barely indicate educated guesses.

Since morphological analysis in its recent form was a part of the grammar exam only in the last two years of the project, it may be too early to pass judgement. However, it ought to be noted that the students performed especially poorly in the task in which they had to provide the root of a given word in its dictionary form (for instance *indivisible* -> *divide*). This once again draws attention to a possibly insufficient acquisition of vocabulary.

7.3 How can the difficulties in writing English be explained?

Answers to this question were sought via testing hypotheses derived from the theory of cross-linguistic influence (Sections 6.3, 6.6, 6.7, 6.8 and 6.9) and hypotheses concerning the informants' attitudes and motivation (Sections 6.5).

It was found that the hypotheses derived from a contrastive analysis of Danish and English could account for up to 75% of the observed difficulties. The assumption concerning a possible lack of motivation on the students' part could be dismissed. However, a low level of initial linguistic knowledge at the time of entering the university, and a low level of self-awareness of the informants about their own knowledge could be safely established.

The high level of cross-linguistic influence and the low level of linguistic development seem to point in the same direction, namely that the level of linguistic consciousness of the students should be raised. Judging from a non-systematic review of the students' self-evaluations, mentioned in Section 4.2, raising the students' consciousness about exactitude in their work efforts might also help reduce some of the difficulties.

7.4 How can the difficulties with theoretical grammar be explained?

Conclusion

Regrettably, no conclusive answer to this question was found within the duration of the project. The paper described in Section 6.4 could only establish some implicational connections between various topics of theoretical grammar, and it cannot be considered an answer to the research question.

The only plausible partial explanation which can be offered based on the results of the project is the same that was mentioned in the section above. The students enter the university with a rather sketchy knowledge of grammar, and their apparently low level of linguistic consciousness may impede their learning of such a highly abstract subject that theoretical grammar is.

7.5 What is the relation between knowing theoretical grammar and practical writing skills?

Answers to this question were sought via testing hypotheses derived from the monitor theory. Generally, it was found that the level of precision in writing correlated with the level of knowledge of theoretical grammar although the correlation never exceeded medium degrees. Thus, the monitor theory was neither corroborated, nor falsified.

However, it must also be noted that the data used in the project made it possible to measure only linguistic *precision*, not linguistic *knowledge*. Even though the students' precision in their writing skills remained rather constant during their first year at university, there is reason to believe that they expanded their knowledge in other fields. This expansion, which was likely the focus and goal of most students since grammar seemed of secondary – if not lower – importance to them, may have drawn their attention and cognitive power away from improving their linguistic precision. In this view, stagnating – instead of declining – linguistic precision might not be such a bad sign in an overall assessment of the students.

7.6 Pedagogical implications

The findings of the project suggest strongly that efforts should be exerted on vocabulary training. This does not seem to be of any priority now.¹⁹ Since the teaching is

¹⁹ This claim applies to my department, and in my prior experience, also to the English departments at Aarhus University, where I taught various courses until 2012.

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conducted in English, and the literature used is in English, the students are assumed to enter the university with an adequate vocabulary, and if not, they are supposed to acquire it by themselves. Expecting such a level of self-drive is not outrageous at the tertiary level of education. However, helping the students on the way, at least by making them consciously aware of the importance of a suitably sized vocabulary is desirable.

Raising the level of the students' (self-)consciousness is in general advocated by the findings of the project. However, when it comes to grammar it seems that more room should be allocated to practising so-to-speak low-level phenomena, such as the employment of agreement rules. Most of the exercises in *English Grammar* train the students to analyse syntactic structure in theoretical terms, not the production of actual English sentences. It ought to be evaluated more thoroughly which parts of grammar theory are most beneficial to teach considering the limited budget of teaching hours and the fact that the students of business communication are not meant to become theoretical linguists.

8 Thoughts for the future

This chapter lists some ideas in random order that were considered during the project, and which seem to be natural extensions of it, but which have not been pursued because of prioritising the studies presented in Chapter 6. The list is far from being exhaustive.

The ideas catalogued here are in different stages of realisation. Some would be direct sequels of work that has already been done, for instance those in Sections 8.2 and 8.3. For these the necessary data are already available and prepared. Other ideas, for instance those in Sections 8.4 and 8.6, are only in the planning stage as of now, and it will require more effort to write them up.

8.1 Graded feedback

The statistical findings of the project may provide a basis for developing a feedback system for the students in which not only the existence and the category of mistakes are noted and fed back to the students, but also the severity of the mistakes. Such a system could be based on a frequency analysis of subtypes of the occurrences of the various error types. All the data are available for such a frequency analysis although not all error types have yet been subdivided. The statistical analysis may be augmented and modified by a survey of teachers' opinions on the severity of the various (sub)types of errors.

8.2 Study of educational background

As mentioned in Section 6.1, my first article included a brief correlational analysis of the students' high school background and their achievements in English. It yielded a somewhat surprising result indicating that students from business school tended to score better than students from grammar school (*gymnasium*) did. It was surprising because grammar school was supposed to provide the students with a more thorough linguistic introduction, called "general language understanding" (Danish Ministry of Education 2010, 2017b), which should have been reflected in better results in English.

However, that calculation was based on the students of only one academic year (2012-2013), and the study should therefore be repeated in order to verify those findings. All the necessary data were in fact collected for the following academic years; however, matters of higher priority have prevented the analysis from being executed again. A more thorough study would be relevant as an assessment of the apparent effectiveness of the various high-school types, and for better preparing my department for the reception of freshmen.

Since the surveys of the students' educational background also collected data items other than their school background (see Appendix G), this study would also be able to serve as a preliminary study of wider sociological scope attempting to shed some light on the relation between students' academic advancement and their educational background.

8.3 Cross-linguistic influence across L1's

A work that has been planned from the beginning of this project is a detailed analysis of the surveys administered to the Slovene and Serbian informants. It is expected that this analysis can ascertain how much of the cross-linguistic influence found between Danish and English is indeed cross-linguistic influence.

The hypothesis is that if the Slovene and Serbian informants too show the kind of deviations that can be predicted from a contrastive analysis of English on the one hand and Slovene and Serbian on the other hand as is the case with the Danish informants, that will corroborate the theory of cross-linguistic influence (Jarvis 2000). As mentioned in Section 6.9, Slovene and Serbian share with Danish the lack of agreement between relativizer and antecedent in animacy, and Slovene shares to some extent with Danish the lack of case declension of the relativizer. The study planned will focus on these areas.

8.4 Overgeneralisation

The excessive use of *do*-support by Danish students, noted in Section 6.3 is a possible candidate for future work. It would serve as the basis for or a part of a study whose purpose would be to investigate the concept of overgeneralisation. It has been observed (R. Ellis 1997) that learners tend to overuse phenomena in the language

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being acquired – possibly by overgeneralising relevant rules of the target language – which are lacking in the languages that the learner already knows.

Danish students sometimes use *do*-support in their writings in English in contexts in which the use of *do* as auxiliary is unwarranted, for instance *He does never read a book*. A closer inspection of the instances of such overuse of *do* might reveal something about the dynamics of language acquisition. The database of the project can most probably also furnish instances of the overuse of other elements of English and thereby enable a thorough study of overgeneralisation.

8.5 Lexical analysis

Although this project had an explicit focus on the informants' difficulties with grammar, one of the conclusions was that the informants might also face challenges with the acquisition of the vocabulary of English. As mentioned in Section 2.6.2, provision had in fact been made to perform a lexical frequency analysis, which could reveal the level of the students' lexical sophistication. However, because priority was given to the investigation of the informants' problems with grammar, the mentioned provision has not been put to use. A lexical study of the Danish students is therefore planned for the future.

8.6 The students' use of the error analysis

As described in Section 2.3, the error analysis of the students' writings in *Production of Written Texts* was originally conceived as a pedagogical tool in order to give the students feedback about their precision in the use of English. In fact, the students are given fairly strong and clear hints about the nature of their mistakes in their writings since the mistakes are categorised into 30 different types.

Nevertheless, it has been noticed informally during the grading process of the portfolio exams (Section 3.1.3) that the students sometimes seem to make the revisions as if they were oblivious to what is wrong in their texts. For instance, faced with the verdict of having a wrong choice of word, a student has been observed to move the faulty word to somewhere else in the clause instead of replacing it with a more appropriate dictionary item.

It would therefore be interesting and pedagogically useful to investigate how much the students are able to utilise the error analysis that is done for them on their

texts. The investigation would build on an analysis of how inadequately the mistakes that the students did not correct adequately in their portfolio exams were revised. That is, it would be a qualitative analysis of what went wrong in the revision process. This analysis might be supplemented by a questionnaire survey of the students' opinion about the feedback and revision processes and their awareness of the subtleties of the error analysis, i.e. of the different error types.

8.7 Detailed investigation of what wrong answers were given at grammar exams

As mentioned in Section 2.3.5, provision had been made for making an analysis of what incorrect responses the informants would give at the grammar exam and in their grammar home assignments. This possibility has not been exploited, but it would be very useful in order to gain a more nuanced picture of the students' understanding of theoretical grammar.

Such a study could not only reveal which (types of) questions are found most difficult by the students (that is already visible from a simple counting of the correct answers to each question), but probably also shed light on why those questions appear most difficult. Knowing this could help improve the teaching of theoretical grammar by allotting more attention to challenging items. It could also help produce sets of exam questions that would be informed by a scientific study of the students' difficulties and challenges, and which would not merely be based on the teachers' intuition as to what is necessary to probe and how it is appropriate to probe it with the help of the exam (McNamara 2014, Malec 2016).

For instance, I have assumed that it is more difficult for students to identify the object complement in a clause than say the direct object. Hence, questions that ask for the identification of the object complement make the grammar exam more difficult than questions enquiring other clause constituents. The assumption is derived from the fact that object complements appear more rarely than most other clause constituents in English sentences. However, this and similar assumptions have not been tested, which begs the question whether the grammar exams have been appropriate so far.

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Appendix A: Correlation between theoretical knowledge of grammar and performance in the production of written texts

<http://aauforlag.dk/Shop/sprog-og-internationale-studier/multidisciplinary-perspectives-on-language-co.aspx>

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Appendix B: Statistical model of learning descriptive grammar

http://cecils.webclass.co/proceedings/Richard_Madsen.pdf

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Appendix C: Students' self-assessment and self-awareness in language learning

http://www.wydawnictwokul.lublin.pl/sklep/product_info.php?products_id=3075

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Appendix D: The accessibility hierarchy of relativization in second language acquisition

http://eprints.ibu.edu.ba/2899/1/RICHARD%20MADSEN_DENMARK.pdf

Appendix E: L2 Influence on L1 with Respect to Constituent Order in Translations from English into Danish

<http://cecils.upol.cz/proceedings2015.pdf>

Appendix F: Relative clauses in second language acquisition

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Relative clauses in second language acquisition

Abstract

Despite English and Danish being similar languages, even Danes who are proficient in English (university students of English) seem to have difficulties with relative clauses in English. This paper explores this issue by first making a detailed contrastive analysis of English and Danish, and then comparing the hypotheses drawn from this analysis to a corpus of texts, consisting of essays and summaries in English, and translations from Danish into English, written by Danish university students. The corpus study is supplemented by questionnaires testing the students' abilities to form relative clauses in English. It is found that the types of errors predicted from the contrastive analysis do occur to a large extent in the students' texts and in the questionnaire responses.

Keywords: relativization, second language acquisition, syntax

1. Introduction

The main purpose of the author's PhD project is to document and analyse the challenges that Danish university students (primarily freshmen) face in their acquisition of written English and in their learning of descriptive/theoretical grammar. The project has its point of departure in the interlanguage and contrastive hypotheses (Selinker 1972; Lado 1957, Corder 1981, Ellis 2009, 2012, Jarvis 2011), and in-

stances of the influence of the L1 (Danish) on the L2 (English) in the students' writings are indeed ubiquitous (Madsen 2014, 2015a, 2015b). In this paper, the focus is on the acquisition of English relative clauses.

The impetus to this study was the informal noticing that Danish university students of English seemed to have trouble with the use of *whose* as a relative pronoun. It was surprising since Danish has a cognate (*hvis*), which is used in the exact same way syntactically as *whose*. This phenomenon was investigated in Madsen (2015a). During that project, further problem areas with the use of relative pronouns by Danes were identified, and the present paper focuses on these areas, expounded in the next section.

2. Theory and hypotheses

As mentioned in the introduction, the theoretical approach of this paper is the contrastive hypothesis, i.e. a learner's L1 influences the learner's acquisition of the L2 (Lado 1957). Since Lado's seminal work it has been recognised (Pavlenko et al. 2002, Jarvis et al. 2008, Jarvis 2011, Odlin 1989) that not only the learner's mother tongue can influence the language being learnt, but also other languages that the learner has acquired previously. Such a possible non-Danish-language influence has been ignored in the present study although some of the informants are descendants of immigrants and have thus been raised bilingually. One reason for ignoring this possible influence is that there are only few early-childhood bilinguals among the informants, and consequently, it is not possible to make a reliable statistical analysis of this group compared to the monolingually raised informants, especially since the former group is heterogeneous representing very different parallel L1s, such as Arabic, Turkish, Vietnamese, etc. Another reason is that all these informants have grown up in Denmark and attended Danish schools, and their Danish is on a par with that of their monolingually raised peers. By not excluding the bilingually raised informants, this study describes the "average" student *citizen* of Denmark, and not an idealised group of students raised monolingually in Danish. On the other hand, an exchange student was excluded from the study even though her written Danish compared favourably with that of native Danes, because she did not grow up and was never a resident in Denmark.

The hypotheses that were tested in this work were based on a contrastive comparison, which is explicated below (Huddleston and Pullum 2002, Togeby 2003). Both being Germanic languages, Danish and English are expectably similar with respect to the formation of relative clauses. The most frequent type of relative clause in Danish is the finite postmodifying relative clause introduced by a relativizer. Just as in English, the relativizer can be omitted when it is the direct or indirect object or

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is part of a prepositional construction. When the relativizer is part of a prepositional construction, the preposition is stranded most frequently¹. Danish allows non-finite postmodifying clauses too in the same way as English does; however, these are used much less frequently than in English (Hjulmand and Schwarz 2012). On the other hand, Danish allows non-finite premodifying clauses too, much like German, although such constructions are restricted to legal language or legalese.² The focus of this study is – as mentioned in the introduction – on the use of relativizers; consequently, it concerns itself with the use of finite postmodifying relative clauses.

Table 1 lists the relativizers of Danish. It is disputed whether all or in fact any of them can be called relative *pronouns* (Lehmann 1984, Togeby 2003); however, that discussion is beside the point of this study. Relativizers that correspond to *where*, *why* and *when* were ignored in this study because they are limited to antecedents with special features, such as place, reason and time. However, a study is planned to investigate the use of *where* by Danes because its Danish cognate *hvor* has a much wider application than *where*, and it seems for this reason that Danes sometimes misuse *where* when writing English.

Relativizer	Antecedent	Syntactic function in relative clause
<i>som</i>	any except a clause	any except possessor
<i>der</i>	any except a clause	only subject
<i>hvilket</i>	a clause	any except possessor
<i>hvad</i>	a clause	any except possessor and subject
<i>hvad der</i>	a clause	only subject
<i>hvilken</i>	inanimate except a clause	any except possessor
<i>hvem</i>	animate	any except possessor

¹ In the case of the relativizer *som*, the preposition is invariably stranded. In the case of *hvem* and *hvilken*, it is typically preposed, and when the relativizer would be *hvad*, the cognate of *what*, it and the relativizer are fused. E.g., *om hvad* becomes *hvorom* ‘whereabout’.

² There is some evidence that non-finite premodifying clauses are difficult for people not trained in legal language to comprehend. A survey that was supposed to test the informants’ ability to translate Danish sentences containing non-finite premodifying clauses into English failed because many informants apparently did not even understand the Danish originals even though these were rather simple clauses in which one of the NPs merely contained a non-finite premodifying clause.

Relativizer	Antecedent	Syntactic function in relative clause
<i>hvis</i>	any	only possessor

Table 1: Relativizers in modern Danish

Hvilken and *hvem* are the cognates of *which* and *whom*, respectively, and are almost exclusively used as interrogative pronouns, only seldom as relativizers in modern Danish. If *hvilken* is indeed used, it agrees with its antecedent in grammatical gender and number. *Hvilket* is the neuter singular of *hvilken*; however, in modern Danish it is almost only used with a clausal antecedent. In any case, *hvilken* and its declensions can only refer to inanimate antecedents. *Hvem* is originally the dative form of the animate interrogative/relative pronoun; however, it has completely replaced the original nominative form *hvo*. *Hvo* appears only in a couple of proverbs in modern Danish. *Hvem* can only refer to animate antecedents. *Hvis* is the genitive of *hvo/hvem*; however, it can – just as the English *whose* – also be used with inanimate antecedents. *Som* and *der* are the relativizers that are used by far most frequently in modern Danish. It must be noted, however, that *som* and *der* are also the translation equivalents of *as* and *there*, respectively. *Der* is of course not only the translation equivalent of *there*, but also its cognate. Both *som* and *der* are indifferent to animacy and can refer to any antecedents except clauses.³

Danish does not distinguish between restrictive and non-restrictive relative clauses as far as the relativizer itself is concerned. In other words, there is no difference in the choice of relativizer similar to the distinction in English between *that* on the one hand and *who/which* on the other hand. Nor is the distinction between parenthetical and restrictive relative clauses reflected consistently in punctuation, i.e. comma usage. The Danish Language Council does not recommend the use of comma before restrictive relative clauses, similarly to the standard orthographic rule in English, which precludes the use of comma before restrictive relative clauses. However, this recommendation has existed only since 1996, and comma is still allowed before any subordinate clause regardless of its nature. Before 1996, it was obligatory to place a comma before every subordinate clause, as in German. In the experience of the author of this paper, who has educated teachers of Danish since 2000 and has given countless public lectures on the use of punctuation in Danish since 2009, the abovementioned recommendation has gone unnoticed by both the general public and the teachers of Danish. Consequently, most Danes are completely unaware that there is at all a difference between parenthetical and restrictive relative clauses, and the teaching of this distinction in English is a perpetual challenge.

³ In apparently careless writing, *som* is sometimes found referring to a clausal antecedent. *Der* has not been attested in this function regardless of writing style.

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Based on the contrastive analysis above, it is expected that negative transfer from Danish to English occurs in the following cases, which constitute the hypotheses for this study:

1. *Which* and *who* may be confused with respect to the animacy of the antecedent because the most frequently used relativizers in Danish (*som* and *der*) do not make this distinction;
2. *Who* and *whom* may be confused in the way that *whom* is used erroneously as the subject of the relative clause since *whom* has an obvious cognate in Danish (*hvem*), which can be readily used as the subject in modern Danish, whereas *who* does not have a widely known cognate at all anymore;
3. Entirely wrong words may be used, i.e. *as* and *there* in place of a proper relativizer because *as* and *there* are also translation equivalents of the Danish words most frequently used as relativizers, namely *som* and *der*. Naturally, the correct use of *as* as relativizer is not considered a mistake;
4. Parenthetical and restrictive relative clauses may be confused with respect to both the choice of relativizer (*that* vs. *who/which*) and the use of comma.

Even though it is formulated above, the present paper does not concern itself with hypothesis 4 because it is planned to dedicate a separate study to the use of punctuation in English by Danes. The reason for devoting a separate paper to that issue is that as much as about 20% of all mistakes detected in the writings of Danish students have to do with punctuation, especially with the use of comma (Madsen 2014).

3. Method

For the testing of the hypotheses outlined above, a group of freshmen of English Business Communication at Aalborg University, Denmark served as informants. Two types of data were gathered: results of a questionnaire specifically developed for this study and error analysis of texts that the students had written independently of this study (Corder 1981, Oppenheim 1992). The questionnaire contained a set of gap-filling and a set of multiple-choice questions, in both of which the students had to insert the appropriate relativizer into matrix clauses, together with an appropriate preposition if needed. The two sets of questions will be henceforth referred to as the gap-filling and multiple-choice test, respectively. The tests were administered electronically with the help of the quiz functionality of the Moodle software package,

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which is used for all study-related administrative and educational purposes in Aalborg University. The questions were presented to the informants in a random order, so no two informants received the questions in the same order. The set of answers to the multiple-choice questions was also randomised and contained besides the correct answer both wrong, but sensible answers (i.e. answers with wrong relativizers or wrong prepositions) and nonsensical answers (i.e. answers that did not even contain a relativizer, including of course the words *as* and *there*). Neither the relativizer *that* nor the zero relativizer was part of the set of answers to the multiple-choice questions in order to force the informants to choose between *who* and *which* (Table 2). With one exception, the zero relativizer was never a viable choice to the gap-filling questions; thus empty responses automatically counted as mistakes. Because of the rigidity of the quiz function of Moodle, prepositions always had to be preposed the relativizer, never stranded. Table 2 lists the questions of both the multiple-choice and gap-filling tests, and Table 3 shows the answers to the multiple-choice questions. The tests actually contained four more questions each that concerned topics outside the scope of this study; they are thus not reported here.

Relativizer sought	Multiple-choice questions	Gap-filling questions
<i>Who</i>	She misses her grandma, { } died a couple of weeks ago, very much.	I watch videos featuring a chemist, { } is now my new hero, on YouTube.
<i>Whom</i>	Jackie Chan, { } I admire, is a famous actor.	Prof. Poliakoff, { } I watch on YouTube, is an excellent chemist.
<i>Which</i> as direct object	I sold the sofa { } no one liked very much.	I like the videos { } Prof. Poliakoff and his team make.
<i>Which</i> as subject	I bought a new sofa, { } was on sale in IKEA.	I like to watch videos { } feature science.
<i>to whom</i>	My students, { } I give many exercises, are getting better and better.	Peter, { } Julie has told a sad story, is a good listener.
<i>from whom</i>	Prof. Poliakoff is someone { } you can learn a lot.	She misses her grandma, { } she has inherited a sofa.
<i>about which</i>	The sofa { } you may have read elsewhere doesn't exist.	The elements and molecules, { } Prof. Poliakoff lectures in his videos, are very excit-

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Relativizer sought	Multiple-choice questions	Gap-filling questions
		ing.
<i>of which</i>	Nordrhein-Westfalen, the English name { } is North Rhine-Westphalia, is my favourite federal state of Germany.	Vatican City, the major “industry” { } is religion, is the smallest state in the world.

Table 2: The questions of the tests

<i>as</i>	<i>there</i>	<i>which</i>	<i>who</i>	<i>whom</i>	<i>whose</i>	<i>where</i>
<i>why</i>	<i>what</i>	<i>from whom</i>	<i>because</i>	<i>to whom</i>	<i>of which</i>	<i>about which</i>

Table 3: The set of answers to the multiple-choice questions

In order also to have a textual base for the study, a body of texts written by freshmen in the five academic years from the autumn of 2010 to the spring of 2015 was analysed for errors in the use of relative clauses. The informants participating in the test described above, and the informants providing the texts are two different groups since the tests were conducted in the autumn of 2015. The texts were composed in the course Production of Written Texts within three genres: short composition (e.g. business letters, ads) in English, summarising in English of an English original, and translation from Danish into English.

4. Analysis

In the first two subsections, the results of the two tests are presented. The responses were assigned the following six labels: correct, wrong form but correct animacy, Danism, wrong animacy, *whom* instead of *who*, and empty or nonsensical. A response was classified correct when it was the correct relativizer, spelled correctly, and if necessary, accompanied with the correct preposition. The label wrong form but correct animacy covers cases in which the relativizer was misspelled, accompanied with an incorrect preposition or did not have a preposition when one was called for. A response was classified as Danism when it was *as* or *there* (see hypothesis 3). The label wrong animacy covers cases in which a relativizer with the wrong animacy was used regardless whether it was spelled correctly or had the correct preposi-

tion (see hypothesis 1). The label *whom* instead of *who* covers cases in which *whom* had been used erroneously as subject. This label is only relevant for one question in either test (see hypothesis 2). The label empty or nonsensical covers cases in which the response did not contain a relativizer at all. Since only 81 informants participated in the tests, the percentages are rounded to the nearest whole number. That is why the sum of the numbers in one row may not equal 100; nevertheless, all responses are accounted for.

4.1. Results of the gap-filling test

The gap-filling test was used to see if the informants were able to insert the right (form of the) relativizer together with a preposition if needed. Table 4 shows the test results in percentage of the total number of responses.

n=81	Response categories					
Target relativizers and prepositions	correct	wrong form but correct animacy	Danism	wrong animacy	<i>whom</i> instead of <i>who</i>	empty or nonsensical
<i>who</i>	79	1	0	7	10	2
<i>who(m)</i>	89 ⁴	2	0	5	n.a.	2
<i>which</i> as direct object	86 ⁵	0	0	6	n.a.	7
<i>which</i> as subject	77 ⁶	1	0	1	n.a.	20

⁴ 65% of the informants responded with *who*, and 23% with *whom*. Both answers were accepted as correct.

⁵ 53% of the informants responded with *that*, and 33% with *which*. Both answers were accepted as correct. No informants used the zero relativizer.

⁶ 42% of the informants responded with *which*, and 36% with *that*. Both answers were accepted as correct.

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n=81	Response categories					
Target relativizers and prepositions	correct	wrong form but correct animacy	Danism	wrong animacy	<i>whom</i> instead of <i>who</i>	empty or nonsensical
<i>to whom</i>	15	72	0	5	n.a.	9
<i>from whom</i>	1	83	0	10	n.a.	6
<i>about which</i>	10	74	0	1	n.a.	15
<i>of which</i>	9	59	2	2	n.a.	27

Table 4: The results of the gap-filling test

The low number of correct answers in the case of *to whom* can be explained by interference from Danish since Danish does not require the use of a preposition when the relativizer is to function as indirect object in its relative clause. The use of the preposition *til*, the counterpart of *to*, is allowed, but seemingly disfavoured. However, the other cases of a relativizer combined with a preposition, which also demonstrate a low number of correct responses, cannot be explained in such a straightforward manner because also Danish requires the use of a preposition in these cases. Nevertheless, no preposition was provided at all in the vast majority of the responses. The only possible explanation with reference to Danish may be that modern Danish strongly dejects prepositions combined directly with a relativizer; a stranded preposition is clearly the favoured choice.

4.2. Results of the multiple-choice test

Also the multiple-choice test was taken by 81 informants. Table 5 shows the test results in percentage of the total number of responses.

n=81	Response categories
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Appendix F: Relative clauses in second language acquisition

Target relativizers and prepositions	correct	wrong form but correct animacy	Danism	wrong animacy	whom instead of who	empty or nonsensical
<i>who</i>	88	0	1	2	7	1
<i>who(m)</i>	96 ⁷	0	1	1	n.a.	1
<i>which</i> as direct object	70	7	2	9	n.a.	11
<i>which</i> as subject	91	1	7	0	n.a.	0
<i>to whom</i>	49	42	0	9	n.a.	0
<i>from whom</i>	69	20	0	9	n.a.	2
<i>about which</i>	30	35	25	7	n.a.	4
<i>of which</i>	31	65	2	1	n.a.	0

Table 5: The results of the multiple-choice test

As in the case of the gap-filling test, the items that required a relativizer with a preposition proved to be the most challenging ones although to a lesser degree. Also in the multiple-choice test, the prevalent problem was the omission of the preposition – even though required in Danish as well – not the use of a wrong preposition. On the other hand, the multiple-choice test elicited considerably fewer empty or nonsensical responses than the gap-filling test did. Contrary to this, the multiple-choice test resulted in many more Danisms in the responses than the gap-filling test did. The results of the two tests are similar to each other as for the wrong choice of relativizer with respect to the antecedent’s animacy, and the erroneous use of *whom* as subject.

4.3. Results of the error analysis

⁷ 57% of the informants responded with *who*, and 40% with *whom*. Both responses were accepted as correct.

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The error analysis of the corpus was used to see to what extent in actual practice the students made mistakes with relativizers with regard to the hypotheses posited in this study. 1421 texts in English containing more than 370 000 words were analysed. Of all the mistakes that have been detected, roughly 1.09% have to do with relativization. This error type is therefore not the most critical one by and large. Table 6 shows the summary of the error analysis.

Text type	Relativizer used	Number of instances	Wrong animacy	Wrong case
Translation from Danish into English 539 texts, 174 000 words	<i>who</i>	441	26 (5.86%)	n.a.
	<i>whom</i>	16	0	15 (94%)
	<i>which</i>	996	1 (0.10%)	n.a.
	<i>Danism</i>	15	n.a.	0
Summary 408 texts, 97 000 words	<i>who</i>	361	4 (1.11%)	n.a.
	<i>whom</i>	7	0	3 (43%)
	<i>which</i>	368	3 (0.82%)	n.a.
	<i>Danism</i>	0	n.a.	0
Free composition 474 texts, 107 000 words	<i>who</i>	80	5 (63%)	n.a.
	<i>whom</i>	8	1 (13%)	5 (63%)
	<i>which</i>	402	0	n.a.
	<i>Danism</i>	2	n.a.	0
Altogether 1421 texts, 370 000 words		2696 (0.56% Danism)	40 (1.49%)	23 (74%)

Table 6: Results of the error analysis

Instances of *that*, *why*, *where*, *when* and *whose* used as relativizer were ignored in this study since they are not covered by the hypotheses. Instances of wrong or non-

Appendix F: Relative clauses in second language acquisition

use of a preposition with a relativizer were also ignored because those errors had been classified as preposition errors and thus fell outside the scope of this study.

The sum of all the instances of the relativizers also includes Danisms (the erroneous use of *as* and *there*), which constitute 0.56% of all the instances of the relativizers used by the students and investigated in this study. Danisms were ignored in the calculation of the percentages of the instances of wrong choice of animacy since the underlying Danish words do not distinguish between animate and inanimate antecedents. The possibility of wrong case usage, on the other hand, does exist with Danisms. As can be seen in Table 1, *der* can only be used as the subject of the relative clause. Thus, if *there* were used in a function other than the subject, it could be construed as an error in case even though *der* and *som* can hardly be considered declensional forms. In any case, no such errors were detected, and thus, the percentage of the sum of the instances of wrong choice of case reflects only the erroneous use of *whom* as subject in proportion to all instances of *whom* as relativizer.

It seems that *who* is more often used erroneously with inanimate antecedents than *which* is used with animate antecedents. One partial explanation is that the students often use *who* with reference to a firm or company, but with the verb in the singular. These mistakes were classified as mistakes with the relativizer for this study; however, in principle, they could also be categorised as mistakes with subject-verb agreement. If so, *who* may not be significantly more misused than *which*.

4.4. Summary of the analyses

Table 7 summarises the main results of the tests and the error analysis.

		wrong animacy	wrong case	Danism
Error analysis		1.49%	74%	0.56%
Test	multiple-choice	4.8%	7%	3.8%
	gap-filling	4.8%	11%	0.3%

Table 7: Summary of the tests and the error analysis

The confusion of the relativizer with respect to the antecedent's animacy is more pronounced in the tests than in actual writing, and it does not seem to matter how the

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students are tested. Whether this difference is significant or not, is impossible estimate. In any case, it is somewhat consoling that the students do better in the actual use of English than in artificial tests.

The erroneous use of *whom* as subject is, unfortunately, much more pronounced in actual writing than in either of the tests, which seem to yield similar results. Since *whom* is not used very often, as shown in Table 6, one might argue that it does not cause so many mistakes in practice, either. Nevertheless, it is somewhat worrying that whenever the students do attempt to use it, they do so almost invariably erroneously. Thus, it may warrant the introduction of some extra exercises in class.

The erroneous use of *as* and *there*, here called Danism, has similarly low prevalence both in actual writing and in the gap-filling test. The relatively high occurrence of this error type in the multiple-choice test might be due to the fact that the students are explicitly presented with *as* and *there* as possible answers, and this might elevate the students' inclination to use them. In any case, since the prevalence of this error type is so low in practice, it does not seem to be the biggest cause for concern.

5. Conclusion

Generally, all the three hypotheses that were posited in this study were verified, to differing degrees. The most pregnant of the hypotheses is number 2, the erroneous use of *whom* as subject. Although *whom* is not a word that is used frequently by the students, also not when it could and ought to be used in an academic text, it is almost always used erroneously when it is used. Thus, it seems to deserve increased attention in the teaching of academic and scientific English to Danish students.

It is debatable how much one should worry because of the fact that about 1.5% of the relativizers used by Danish students show a mismatch with respect to the animacy of the antecedent. In an informal interview, some of the informants acknowledged that this distinction is so basic that one ought not to make a mistake with it. On the other hand, the interviewees contended that the mistakes were not due to lack of knowledge, but to lack of proper attention when doing their assignments. If this claim is warranted, it may not be necessary to focus on the technicalities of *who* and *which* in class, but rather on the training of paying ample attention to and in writing.

The erroneous use of *as* and *there*, here called Danism, merits the least concern since it has a rather low occurrence in the actual writing of the students. Its relatively

frequent occurrence in the multiple-choice test is likely attributable to the artificial and biased nature of the test.

A result that was not anticipated has also emerged from the tests used in this study. Using relativizers with preposed, not stranded prepositions seems to be rather challenging for the students. The error analysis can neither corroborate nor falsify this finding because this issue was not known when the error analysis was performed. Nevertheless, based on the tests, practising the use of relativizers with prepositions seems to be a very good idea.

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Appendix G: Questionnaire items of educational background

White cells indicate that a given question was not posed in the year(s).

2012-2013	2013-2014	2014-2015	2015-2016
Type of high-school education			
Region of origin in Denmark			
Length of stay in an English speaking country for work or school			
Reason for stay in an English speaking country			
Length of stay in a non-English speaking country for work or school			
Reason for stay in a non-English speaking country			
Languages spoken at the time of the survey without self-rating		Languages spoken at the time of the survey with self-rating	
	Languages acquired in childhood		
		Mother's educational level	
		Father's educational level	
		Number of siblings who have taken or are taking higher education	
		The extent to which the informant uses English in everyday life	

Appendix H: Questionnaires of relativization

Clause-combining questionnaire with items in English

I sold the sofa. No-one liked the sofa very much.
I bought a new sofa for my new house. It was on sale in IKEA.
She misses her grandma. She has inherited a sofa from her grandma.
She misses her grandma very much. She died merely a couple of weeks ago.
I too liked her grandma. Her grandma's wit was remarkable.
You are my students at AAU. I give my students many exercises.
Actually, the sofa doesn't exist. You have read about the sofa above.
Peter is a good listener. Julie has told Peter a sad story.
That book is so unprincipled. The authors of that book are clearly not linguists.
Jackie Chan is a famous actor. I admire him.
Great scientists deserve respect. E.g. Einstein and von Neumann were great scientists.
He was a famous artist. His wife made him a famous artist.
Nordstrand is a nice place. I was once at Nordstrand with an ex-girlfriend of mine.
Inspector Clouseau always accepts a challenge. The Fassbinder case was certainly a challenge.
Koblenz is an old city. The Rhine and the Mosel flow together in Koblenz.

Clause-combining questionnaire with items in Danish (with translations)

Hun har solgt bøgerne. Hun har læst bøgerne. <i>(She has sold the books. She has read the books.)</i>
--

Appendix H: Questionnaires of relativization

Hun har købt en ny bog. Den var billig på Amazon. <i>(She has bought a new book. It was cheap at Amazon.)</i>
Han savner sin ex-kæreste. Han har lært meget af hende. <i>(He missed his ex-girlfriend. He has learned a lot from her.)</i>
Han savner sin ex-kæreste. Hun kunne tale saksisk. <i>(He misses his ex-girlfriend. She could speak Saxon.)</i>
Peter kunne lide Lise. Hendes humor var fremragende. <i>(Peter liked Lise. Her humour was marvellous.)</i>
Mette er vild med Jon. Hun giver ham mange gaver. <i>(Mette is crazy about Jon. She gives him many presents.)</i>
Bernard Comrie har skrevet meget om verber. I vil læse om ham nedenfor. <i>(Bernard Comrie has written much about verbs. You will read about him beneath.)</i>
Peter er et heldigt barn. Hans morfar har fortalt ham mange sjove historier. <i>(Peter is a lucky child. His grandpa has told him many funny stories.)</i>
Den bog er utrolig uvidenskabelig. Den bogs forfattere er tydeligvis ikke lingvister. <i>(That book is incredibly unscientific. That book's authors are clearly not linguists.)</i>
Prof. Christian Lehmann er en brillant lingvist. Jeg beundrer ham. <i>(Prof. Lehmann is a brilliant linguist. I admire him.)</i>
Jeg beundrer eminente lingvister. Fx er Bernard Comrie og Christian Lehmann eminente lingvister. <i>(I admire eminent linguists. E.g. Bernard Comrie and Christian Lehmann are eminent linguists.)</i>
George Soros er berømt/berygtet indenfor businessverdenen. Hans spekulationer har gjort ham berømt/berygtet. <i>(George Soros is (in)famous in the business world. His speculations have made him (in)famous.)</i>

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Slovenien har mange seværdigheder. Jeg har været i Slovenien adskillige gange. <i>(Slovenia has many tourist attractions. I have been to Slovenia many a times.)</i>
Han kan lide gode bøger. Harry Potter-serien er fx gode bøger. <i>(He likes good books. The Harry Potter series are e.g. good books.)</i>
Grenen er et af mine yndlingssteder. Kattegat og Skagerrak træffer hinanden udfor Grenen. <i>(Grenen, the northernmost tip of Denmark, is one of my favourite places. The seas of Kattegat and Skagerrak meet at Grenen.)</i>

Gap-filling questionnaire with English items and Danish (with translations)

Your grammar teacher, Answer parents used to work for the Hungarian railways, loves trains.
Trains, Answer he considers the most noble means of transport, have unfortunately lost much of their popularity.
Bremen, the capital of Answer is the city of Bremen, is the smallest federal state of Germany.
George Stevenson is the engineer Answer is usually credited with inventing the steam locomotive
Computers Answer processor is hyper-threading capable are sometimes falsely advertised as having a processor that possesses twice as many cores as it really does, e.g. quad core instead of dual core.
The girl with Answer John was seen in town yesterday is not his cousin.
Lise er blevet udnævnt til administrerende direktør, Answer er den højeste stilling i hendes firma. <i>(Lise has been promoted to managing director, Answer is the highest position in her company.)</i>
Lise, Answer mor også var topchef, er en emanciperet kvinde. <i>(Lise, Answer mother was also a top manager, is an emancipated woman.)</i>

Appendix H: Questionnaires of relativization

<p>"Den Answer sover, synder ikke" er et romersk ordsprog. <i>("He Answer sleeps, doesn't sin" is a Roman proverb.)</i></p>
<p>Det er de bøger om Answer Peter har fortalt så begejstret. <i>(These are the books about Answer Peter has spoken with so much admiration.)</i></p>
<p>James Bond er nok den mand Answer har forført flest kvinder. <i>(James Bond is likely the man Answer has seduced the most women.)</i></p>
<p>Nok ikke engang Casanova, Answer evner til at bedåre kvinder ellers er verdensberømte, kan hamle op med 007. <i>(Possibly not even Casanova, Answer skills to dazzle women are world famous, can compete with 007.)</i></p>
<p>Casanova, of Answer adventures with women there are plenty of stories, was born in Venice.</p>
<p>Et relativpronomen Answer man ikke kan se, kalder man zero- eller nulpronomen. <i>(A relative pronoun Answer one cannot see is called a zero pronoun.)</i></p>
<p>This is the knife with Answer Julius Caesar was killed.</p>
<p>Angela Merkel er Tysklands kansler, Answer gør hende til verdens mægtigste kvinde. <i>(Angela Merkel is Germany's chancellor, Answer makes her the world's most powerful woman.)</i></p>
<p>Angela Merkel divorced Ulrich Merkel, Answer made her a single woman again.</p>
<p>James Bond er ofte den eneste ved Answer hjælp England kan reddes. <i>(James Bond is often the only one by Answer help England can be saved.)</i></p>
<p>Angela Merkel, Answer is sometimes informally referred to as Angie, is a trained physicist.</p>
<p>Mark Zuckerberg, Answer har grundlagt Facebook, er også anført blandt verdens mægtigste personer. <i>(Mark Zuckerberg, Answer has established Facebook, is also listed among the world's most powerful people.)</i></p>

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The man **Answer** you saw Lisa with cannot have been her cousin.

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